Agendum
Oakland University
Board of Trustees Formal Session
June 26, 2026

Bachelor of Science in Engineering Technology (BSET)

A Recommendation

1. **Division and Department:** Academic Affairs, School of Engineering and Computer Science (SECS), and Industrial and Systems Engineering Department (ISE).

2. **Introduction:** Oakland University proposes a new Bachelor of Science in Engineering Technology (BSET), a reduced-credit, workforce-aligned undergraduate program focused on automation, robotics, controls, instrumentation, advanced manufacturing, and intelligent systems.

3. **Previous Board Action:** None.

4. **Budget Implications:** The program includes phased investments in instructional staffing, laboratory equipment, facilities upgrades, and operational support aligned with projected enrollment growth. The financial model projects positive annual operating performance following the initial implementation period.

5. **Educational Implications:** The BSET program expands access to applied engineering education for transfer students, adult learners, veterans, and first-generation students while maintaining academic rigor through embedded laboratories, upper-division technical coursework, specialization pathways, and a two-semester capstone sequence.

6. **Personnel Implications:** The program will utilize a phased instructional staffing model consisting of Professors of Practice/Special Instructors, adjunct faculty, and shared administrative support.

7. **University Reviews/Approvals:** The proposed program has been reviewed by the School of Engineering and Computer Science Undergraduate Curriculum Committee, School of Engineering and Computer Science Assembly, University Committee on Undergraduate Instruction, University Senate, and the Office of the Provost.

8. **Recommendation:**

WHEREAS, the proposed Bachelor of Science in Engineering Technology (BSET) program supports Oakland University's mission and strategic priorities related to workforce development, student access, and applied learning; and

WHEREAS, the program has completed the required university governance and academic review processes; now, therefore, be it

RESOLVED, that the School of Engineering and Computer Science is authorized to offer the Bachelor of Science in Engineering Technology (BSET); and, be it further

RESOLVED, that the Executive Vice President for Academic Affairs and Provost will complete annual reviews of the Bachelor of Science in Engineering Technology (BSET) degree program to evaluate academic quality and fiscal viability to determine whether the program should continue.

9. **Attachments:**

A. Proposal for the Bachelor of Science in Engineering Technology (BSET) degree program.
B. Proforma budget for the Bachelor of Science in Engineering Technology (BSET) degree program.

Submitted to the President
on 6/8, 2026 by

Amy Thompson, Ph.D., CHES, FESG
Executive Vice President
for Academic Affairs and Provost

Recommended on 6/11, 2026
to the Board for Approval by

Ora Hirsch Pescovitz, M.D.
President

Reviewed by

Joshua D. Merchant, Ph.D.
Chief of Staff and
Secretary to the Board of Trustees

SBRC Proforma Template

Add Program Name Here

FY2026

Most Likely Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		28	47	62	69	74
1st Year Cohort Revenue		$ 496,020	$ 832,605	$ 1,098,330	$ 1,222,335	$ 1,310,910
2nd Year Cohort Revenue		$ -	$ 496,020	$ 832,605	$ 1,098,330	$ 1,222,335
3rd Year Cohort Revenue		$ -	$ -	$ 642,180	$ 1,077,945	$ 1,421,970
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ 496,020	$ 1,328,625	$ 2,573,115	$ 3,398,610	$ 3,955,215
Less: Avg Financial Aid (30%)		$ (148,806)	$ (398,588)	$ (771,935)	$ (1,019,583)	$ (1,186,565)
Net Tuition Revenue		**$ 347,214**	**$ 930,038**	**$ 1,801,181**	**$ 2,379,027**	**$ 2,768,651**
Expenses						
Salaries						
Faculty Salaries	6101					
Special Instructors/PoP Salaries	6101	76000	155800	239590	327570	419948
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211	$ -	$ -	$ 50,540	$ 51,804	$ 53,099
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Part-Time Faculty	6301	$35,000	$49,000	$49,000	$49,000	$49,000
Graduate Assistant	6311	$ -	$ -	$ -	$ -	$ -
Graduate Assistant - Wellness	6311	$ -	$ -	$ -	$ -	$ -
Casual/Temp	6401	$ 19,760	$ 19,760			
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 145,760**	**$ 239,560**	**$ 354,130**	**$ 443,373**	**$ 537,047**
Fringe Benefits	6701	$ 38,565	$ 74,318	$ 135,080	$ 173,912	$ 214,670
Total Compensation		**$ 184,325**	**$ 313,878**	**$ 489,210**	**$ 617,285**	**$ 751,717**
Operating Expenses						
Supplies and Services	7101	$ 30,000	$ 35,000	$ 40,000	$ 45,000	$ 50,000
Graduate Tuition	7101	-	-	-	-	-
E-Learning Support	7102					
Travel	7201					
Equipment	7501	$ 100,000	$ 250,000	$ 200,000	$ 75,000	$ 75,000
Maintenance	7110					
Recruitment and advertising	7101	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 10,000
Library	7401	$ 1,850	$ 1,020	$ 1,122	$ 1,234	$ 1,358
Faculty Startup Funding		$ -	$ -	$ -	$ -	$ -
Total Operating Expenses		$ 156,850	$ 311,020	$ 266,122	$ 146,234	$ 136,358
Total Expenses		**$ 341,175**	**$ 624,898**	**$ 755,332**	**$ 763,519**	**$ 888,075**
University Overhead		$ 84,000	$ 225,000	$ 327,000	$ 393,000	$ 429,000
Net Income (Loss)		**$ (77,961)**	**$ 80,140**	**$ 718,849**	**$ 1,222,508**	**$ 1,451,576**

[1]The tuition calculations do not account for any attrition of students.

2050

Oakland University

NEW UNDERGRADUATE DEGREE PROGRAM PROPOSAL

The new degree program proposal is the principal document used in the approval process and must contain information sufficient for various faculty and administrative bodies within and outside of the university: OU Senate, Board of Trustees, Michigan Associate of State Universities (MASU), Higher Learning Commission (HLC), and the US Department of Education (DOE).

Requirements for an undergraduate degree:

- A minimum of 120 credits are required for the bachelor's degree.
- At least 32 of these credits must be at the 3000 level or above
- At least 45 credits must be completed at Oakland University ("residency requirement")
    - Residency requirement for Bachelor of Interdisciplinary Studies is 32 credits
- A cumulative GPA of at least 2.0 in courses taken at Oakland University
    - Program specific GPA requirements can be included
- General education

Process for new academic programs:

1. With authorization to plan a new undergraduate program, the faculty prepares
    a. The formal proposal (found on the following pages)
    b. A full proforma
    c. An assessment plan
    d. A UCM plan (contact your UCM representative)
2. The formal proposal is sent to the School/College curriculum committee for review, discussion, and recommendation
3. With approval, the proposal is sent to the School/College assembly for review, discussion, and recommendation
4. The Dean or designee forwards the proposal, assessment plan, and proforma to the University Senate
    a. UCUI
    b. Senate Planning Review Committee
    c. Senate Budget Review Committee
    d. Full Senate Review
5. The Provost (as the presiding officer of the senate) recommends to the President
6. The President recommends to the Board of Trustees
7. After BOT approval, the program can advertise with "pending approval" and admit students
8. Review and approval by the Michigan Association of State Universities (MASU)
9. Review and approval by the Higher Learning Commission (HLC)
10. Financial aid can be awarded with DOE approval

Proposed Title of Undergraduate Degree	Bachelor of Science in Engineering Technology (BSET)
Department(s)	School of Engineering and Computer Science
School(s)/College	Engineering
Intended Implementation Date	**Fall 2026**

Provide a brief summary describing the proposed program (250 words max)

Oakland University proposes the establishment of a Bachelor of Science in Engineering Technology (BSET) within the School of Engineering and Computer Science (SECS). This future-focused, 90-credit (minimum) degree addresses Michigan's critical need for engineering technologists capable of translating engineering concepts into practical, real-world solutions across automation, advanced manufacturing, mechatronics, robotics, and Industry 4.0 systems.

Built for transfer efficiency and accelerated completion, the program serves community-college graduates, veterans, adult learners, first-generation students, and recent high-school graduates seeking a direct, employment-ready pathway into high-demand STEM careers. The degree integrates hands-on laboratory instruction, applied artificial intelligence, embedded stackable micro-credentials, and industry-engaged projects throughout the curriculum.

The program delivers technical depth in circuits, electronics, automation, robotics, data acquisition, instrumentation, applied programming, and system integration, culminating in a two-semester capstone. Three dedicated laboratories, ET Core, Mechatronics & Automation, and Capstone/Systems Integration, located at the Macomb University Center (MUC) provide industry-authentic, ABET-aligned learning experiences.

Graduates will be prepared for roles such as automation technologist, robotics integration specialist, mechatronics technologist, and industrial AI technician. Typical starting salaries range from the mid-$50Ks to mid-$60Ks depending on specialization, while median salaries across engineering-technology professions range from approximately $62K to $77K.

By combining applied engineering, AI-enabled competencies, and flexible transfer pathways, the BSET expands access to high-quality STEM education, reinforces SECS's leadership in applied engineering, and serves as a strategic investment in Michigan's advanced manufacturing and mobility workforce.

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I. Rationale

A. Describe how the program will help promote the mission of the university

The Bachelor of Science in Engineering Technology (BSET) advances Oakland University's mission as a student-centered, doctoral research institution with a global perspective by expanding access to high-quality, applied STEM education that meets regional and international industry needs. The program prepares graduates to work with globally adopted engineering standards and technologies, including industrial robotics platforms, automation architectures, ISO/IEC protocols, and data-driven AI systems, supporting OU's mission to develop globally competent professionals.

The BSET strengthens OU's commitment to accessibility, affordability, and student success through a streamlined 90-credit (minimum) structure designed for transfer students, working adults, veterans, and first-generation learners. Delivery at the Macomb University Center (MUC) further expands OU's reach into underserved regions and supports flexible pathways aligned with community-college partners.

By embedding hands-on laboratory learning, applied AI, robotics, mechatronics, and intelligent manufacturing systems throughout the curriculum, the program reinforces OU's emphasis on innovation, experiential learning, and high-impact teaching practices. Faculty and students engage in applied engineering, industry-sponsored projects, and laboratory development that align with OU's public-service and economic-development goals.

The BSET supports OU's mission by preparing graduates who can contribute immediately to Michigan's advanced manufacturing, mobility, and smart-systems sectors, strengthening the state's workforce pipeline while elevating the university's role as a regional leader in applied engineering education.

B. Program need:

- Provide evidence of need or workforce demand - Lightcast data (OIRADA) ******HLC requirement******
- Provide evidence of prospective student funnel data (Admissions) that reflects student desire for the program
- Describe aspects of the proposal that are unique or distinctive to Oakland

Workforce Demand (Lightcast + BLS Data - HLC Requirement)

National BLS data indicate stable to modest growth for engineering technologists, with median wages ranging from $62,000 dollars to 77,000 dollars depending on specialization and region. Projected national growth includes Industrial Engineering Technologists at plus 4 percent, Electrical and Electronic Engineering Technologists at 0 percent change, and Electro-Mechanical and Mechatronics Technologists at 0 percent to minus 4 percent. Although national headcount growth is modest, replacement-driven openings remain strong due to retirements and workforce churn.

Statewide workforce analytics from the Lightcast Q4 2025 Analyst dataset provide a comprehensive overview of employer demand across Michigan for engineering-technology talent aligned with the proposed curriculum. Based on ET-related CIP codes 15.0303, 15.0403, 15.0404, and 15.0613, the dataset reports:

- 120,303 jobs statewide in ET-aligned occupations
- 9,468 annual openings driven by retirements, turnover, and evolving skill needs

- Posting intensity of 2 to 1, indicating employers must post multiple times to attract qualified candidates
- High demand from major employers including GM, Ford, Stellantis, Magna, Stryker, and General Dynamics

These roles directly align with the BSET curriculum in automation, robotics, mechatronics, instrumentation, industrial controls, and AI-enabled systems.

Prospective Student Demand (Admissions and Survey Data)

Initial OU survey results from 25 plus respondents show:

- Approximately 50 percent were very interested in the BSET
- 73 percent were motivated by hands-on labs and industry relevance
- 86 percent sought internships and experiential learning opportunities
- Strong interest in automation, robotics, controls, and AI

A second, larger funnel survey targeting Oakland Community College and Macomb Community College was conducted in January 2026. The program aligns directly with transfer-student demand for a shorter, affordable, ABET-aligned Engineering Technology degree.

Distinctive Features Unique to Oakland University

Oakland's BSET is the only 90-credit minimum, ABET-aligned Engineering Technology degree in the region built from the ground up to eliminate legacy credit inefficiencies. Distinctive elements include:

- AI-integrated ET Core in circuits, automation, mechatronics, instrumentation, and data systems
- Three multifunction, ABET-aligned laboratories located at the Macomb University Center
- Embedded stackable credentials including FANUC Robot Operator, Siemens Mechatronics, OSHA-10, and Python for Automation
- Accelerated degree completion optimized for AAS or MTA transfer students, veterans, and working adults
- 2 plus 1 and 3 plus 0 delivery models with OU faculty teaching all upper-division courses on partner campuses

Together, these features create a future-focused ET program that directly supports Michigan's automation, mobility, and advanced manufacturing workforce needs while expanding OU's impact in applied STEM education.

C. Discuss career options for students who graduate with the proposed degree

Graduates of the Bachelor of Science in Engineering Technology (BSET) will be prepared for applied, hands-on roles that integrate automation, robotics, mechatronics, instrumentation, industrial controls, and data-enabled engineering systems. The program equips students to contribute directly in sectors such as automotive and mobility, smart manufacturing, energy systems, logistics, defense, and industrial data analytics.

Statewide workforce analytics from the Lightcast Q4 2025 Analyst dataset show strong and sustained demand across Michigan for engineering-technology roles aligned with the program's competencies. The statewide dataset, based on ET-related CIP codes 15.0303, 15.0403, 15.0404, and 15.0613, reports:

- 120,303 jobs in Michigan across ET-aligned target occupations
- 9,468 annual openings driven by retirements, turnover, and evolving technology needs
- Posting intensity of 2:1, indicating employers must post multiple times to attract qualified talent
- High demand from major employers including GM, Ford, Stellantis, Magna, Stryker, and General Dynamics

National BLS data further support the demand for applied engineering technologists:

- Industrial Engineering Technologists: +4 percent growth (2023 to 2033)
- Electrical and Electronic Engineering Technologists: 0 percent change (stable demand)
- Electro-Mechanical and Mechatronics Technologists: 0 percent to -4 percent (stable to slightly declining), with strong replacement-driven openings

Placement rates for ABET-accredited engineering technology programs remain high (85 to 90 percent), with typical starting salaries ranging from 62,000 dollars to 77,000 dollars, depending on industry sector and specialization.

Graduates of the proposed BSET will be prepared for roles such as:

- Automation Engineer or Engineering Technologist
- Robotics Technician or Robotics Integration Specialist
- Mechatronics Technician or Electro-mechanical Technologist
- Controls Technician or PLC Programmer
- Industrial Engineering Technologist
- Instrumentation and Test Technologist
- Industrial Internet of Things (IIoT) and data-enabled manufacturing support roles

Overall, the BSET program prepares graduates for immediate employment in automation, robotics, mechatronics, industrial systems, and smart-technology roles that are central to Michigan's advanced manufacturing and mobility ecosystem.

D. Goals and objectives: Provide a list

Program Educational Objectives (PEOs)

Graduates of the Bachelor of Science in Engineering Technology (BSET) program will:

1. **Apply mathematics, science, engineering principles, and modern technology tools** to solve broadly defined engineering problems in automation, industrial systems, and smart technologies.

2. **Design, implement, and improve systems, components, and processes** that address industry and societal needs in areas such as mechatronics, robotics, and intelligent systems.
3. **Communicate effectively** in written, oral, and graphical formats; work productively in technical and non-technical environments; and uphold **professional and ethical standards.**
4. **Conduct tests, measurements, and experiments**, analyze and interpret data, and apply evidence-based approaches to improve processes, enhance quality, and support innovation.
5. **Function effectively as members and leaders of technical teams**, manage projects, integrate systems, and adapt to emerging technologies in multidisciplinary and global contexts.

Program Success Indicators (Assessment and Continuous Improvement)

As stated in the proposal, program success will be measured using:

- Graduation and retention rates
- Job placement within six months and starting-salary data
- Diversity and inclusion metrics
- Student satisfaction and engagement measures
- Employer and Industry Advisory Board feedback
- Growth of internships, applied engineering, and community partnerships

Educational objectives are reviewed on a three-year cycle with input from students, alumni, employers, faculty, and the SECS Industry Advisory Board to ensure alignment with OU's mission and ABET ETAC expectations.

E. Comparison to other similar programs – State/Regional/National

******MASU requirement******

- Include links to at least 3 comparable programs within the state and/or nationally
- Describe any overlaps with other programs at O.U. or other Michigan public universities

National and regional benchmarking in the proposal shows that most ABET-ETAC–aligned Engineering Technology (ET) bachelor's programs require 120–128 credits, use legacy lecture–lab splits, and follow traditional four-year structures. Representative examples include:

Comparable Engineering Technology Programs

1. **Michigan State University – Technology Engineering (128 credits)**
   https://www.egr.msu.edu/te

2. **Wayne State University – Engineering Technology (120 credits)**
   https://engineering.wayne.edu/et

3. **Purdue University – Polytechnic Institute – Mechatronics Engineering Technology (120 credits)**
   https://polytechnic.purdue.edu/degrees/mechatronics-engineering-technology

Across these programs, the standard model is a 120+ credit curriculum with traditional math sequences, separate lecture/lab formats, and specialization tracks added on top of a siloed ET structure.

Distinctive Features of Oakland University's BSET

Oakland University's BSET is uniquely positioned among Michigan public universities and national peers because it is:

1. A 90-credit (minimum) ABET-aligned bachelor's program

No other Michigan public university offers an Engineering Technology degree that compresses the full ET spine, math, science, and applied laboratory experiences into a streamlined 90-credit structure. This design preserves ET rigor while removing legacy inefficiencies.

2. AI-Integrated and Modernized ET Core

OU embeds AI, automation, robotics, instrumentation, mechatronics, industrial networking, and data-enabled systems directly into required courses—not as optional tracks.

3. Transfer-optimized (2+1 and 3+0 pathways)

OU's program is intentionally designed for Michigan community-college AAS/MTA graduates through:

- 2+1 completion at OU
- 3+0 delivery at partner colleges with OU faculty teaching all upper-division credits

No other Michigan public university offers this ET delivery format.

4. Delivered at the Macomb University Center (MUC)

The program uses three dedicated laboratories (ET Core, Mechatronics & Automation, and Capstone/Systems Integration) housed at the MUC, an access-expanding model not replicated by peer institutions.

5. Embedded stackable credentials

The proposal specifies four embedded certifications (FANUC, Siemens, OSHA-10, Python for Automation), providing immediate workforce value.

Overlap With Existing OU and Michigan Public University Programs

Overlap With OU Programs

The proposal explicitly states:

- BSET courses are dedicated ET courses, not used in BSE programs.
- The program attracts a different student population (transfer, applied, workforce-oriented).
- It does not reduce enrollment in existing BSE degrees.
- Interactions with Mechanical, Electrical, and Computer Engineering occur only through shared laboratories and applied projects, not curriculum duplication.

Therefore, there is no curricular overlap, and the program strengthens SECS offerings without displacing any BSE content.

Overlap With Other Michigan Public Universities

No Michigan public university currently offers:

- A 90-credit (minimum) ABET-aligned BSET program
- A 3-year accelerated model
- AI-embedded ET Core as a required component
- 2+1 and 3+0 transfer-first ET pathways

Existing Michigan ET programs (MSU, WSU, UM-Dearborn) follow traditional 120-credit four-year structures, demonstrating OU's distinctive position.

II. Academic Unit

A. Describe how the goals of the School/College/Dept are served by the proposed program

The proposed Bachelor of Science in Engineering Technology (BSET) supports the mission of the School of Engineering and Computer Science (SECS) to deliver high-quality engineering and computing education, promote applied innovation, and serve the engineering profession and broader community. The BSET expands SECS's academic portfolio by providing a rigorous, practice-oriented pathway that complements existing engineering degrees and strengthens SECS's ability to serve both traditional students and community-college transfer populations.

The program enhances SECS's instructional mission through:

• Hands-on, laboratory-centered learning delivered in three dedicated Engineering Technology laboratories at the Macomb University Center (MUC), supporting instruction in automation, robotics, mechatronics, instrumentation, and AI-enabled systems.
• Experiential, project-based instruction integrated throughout the curriculum, including industry-aligned capstone design experiences and applied laboratory coursework structured in accordance with ABET Engineering Technology Accreditation Commission expectations.
• Opportunities for students to earn industry-recognized training credentials embedded within coursework or co-curricular activities, reinforcing SECS's commitment to workforce-relevant technical preparation.

The program supports SECS's innovation mission by strengthening applied instructional engagement in areas such as automation, smart manufacturing, industrial artificial intelligence, mechatronics, and data-enabled engineering systems. These focus areas align with regional workforce priorities and Michigan's Industry 4.0 economic development strategies.

The BSET strengthens SECS's community and public-service mission through:

• Structured partnerships with regional community colleges supporting 2+1 and 3+0 transfer pathways.
• Expanded collaboration with regional employers, industry partners, and workforce-development organizations.
• Preparation of graduates to work effectively with globally recognized engineering standards, industrial technologies, and multidisciplinary teams.

Overall, the BSET enhances SECS's capacity to educate applied engineering technologists and reinforces the School's role in supporting regional workforce development, economic competitiveness, and technology-driven innovation.

B. Describe how existing staff will support the proposed program

The BSET program is supported by a scalable instructional model centered on full-time Special Instructors/Professors of Practice (SI/PoP), supplemented by adjunct faculty, a full-time Clerical Technical Assistant (starting in Year 3), and temp clerk in Years 1-2. This structure uses established SECS instructional workload norms and aligns with the faculty sufficiency, qualifications, and institutional support expectations articulated in ABET Engineering Technology Accreditation Commission (ETAC) Criteria 6 and 7.

Full-Time Instructional Faculty (Special Instructors / Professors of Practice):

Full-time SI/PoP faculty provide the primary instructional capacity for the BSET program, delivering Engineering Technology Core courses, specialization pathways, laboratory instruction, capstone supervision, and program-level assessment activities. Staffing is as follows:

Year 1: 1 SI/PoP (Program Director)

Year 2: 2 SI/PoP

Year 3: 3 SI/PoP

Years 4: 4 SI/PoP

Years 5: 5 SI/PoP (steady state)

Adjunct Faculty:

Adjunct faculty support applied laboratories, specialized pathway courses, and evening or weekend sections as enrollment grows:

Year 1: 5 adjuncts

Year 2: 7 adjuncts

Years 3–5: 7 adjuncts (steady state)

Clerical Technical Assistant:

A 1.0 FTE Clerical Technical Assistant supports scheduling, assessment documentation, laboratory coordination logistics, outreach, and transfer-pathway administration from program launch.

This staffing model ensures that existing SECS instructional structures, workload expectations, governance processes, and assessment systems fully support the BSET program while scaling applied instructional capacity to serve approximately 300 cumulative students by Year 5.

C. Faculty qualifications - current scholarly activity of the faculty in the proposed program - *Appendix A* for CVs ****HLC requirement****

Faculty supporting the Bachelor of Science in Engineering Technology (BSET) program must possess academic and professional credentials consistent with Oakland University policies, Higher Learning Commission (HLC) expectations, and ABET Engineering Technology Accreditation Commission (ETAC) requirements.

Academic Qualifications

• Full-time instructional faculty (Special Instructors / Professors of Practice) hold at least a master's degree in engineering technology, electrical engineering, mechanical or mechatronic engineering, computer science, data science, or a closely related applied discipline.

• Preference is given to candidates with terminal degrees, demonstrated experience in laboratory and applied course development, and technical expertise in automation, robotics, instrumentation, industrial artificial intelligence, mechatronics, and data-enabled manufacturing systems.

• Faculty credentials collectively provide sufficient technical breadth and depth to support effective delivery of the engineering technology curriculum and associated assessment activities.

Industry and Professional Experience

Faculty are expected to possess a minimum of three to five years of relevant professional experience in areas such as automation, mechatronics, robotics integration, controls, instrumentation, industrial networking, or applied computing. Active engagement with industry—through collaborative projects, consulting, workforce-development initiatives, or applied engineering practice—is strongly valued and supports program relevance and continuous improvement.

Teaching Competence

All instructional faculty must demonstrate:

- Effective undergraduate teaching in applied engineering technology contexts
- Ability to deliver hands-on, laboratory-centered instruction
- Experience with project-based learning and practice-oriented pedagogy
- Commitment to mentoring diverse student populations, including transfer students, adult learners, and first-generation students

Applied Scholarship and Professional Engagement

Full-time instructional faculty are not required to maintain a formal research agenda; however, applied scholarship and professional engagement that enhance instructional quality and workforce alignment are encouraged. Such activities may include:

- Applied projects in automation, robotics, mechatronics, instrumentation, industrial AI, or smart manufacturing
- Curriculum innovation and laboratory development
- Participation in externally funded workforce or education initiatives (e.g., NSF ATE, MEDC, DOE)
- Scholarship of teaching and learning, conference participation, and technical dissemination

Credentialing Requirements

All adjunct faculty and full-time instructional faculty, including those teaching in approved 3+0 instructional delivery arrangements at partner community-college sites, must meet Oakland University and SECS credentialing requirements. This approach ensures compliance with faculty qualification, sufficiency, and institutional support expectations articulated in ABET ETAC Criteria 6 and 7 while maintaining consistency with HLC faculty-credential standards.

D. Describe current resources and how the new program will impact existing resources

The proposed Bachelor of Science in Engineering Technology (BSET) program is designed to expand access to applied STEM education while preserving the instructional capacity of existing School of Engineering and Computer Science (SECS) programs. The program primarily attracts new student populations, including community college transfers, adult learners, veterans, and first-generation students, and provides an applied educational pathway for a limited number of internal transfers whose academic goals align more closely with engineering technology. As documented in the proposal, these internal transfers do not reduce overall SECS enrollment but instead contribute to improved retention and degree completion by offering a structured applied alternative.

Instructional Resources

The BSET program is delivered through a dedicated set of Engineering Technology (ET) courses supported by full-time Special Instructors/Professors of Practice and adjunct faculty. The instructional staffing model is intentionally structured to avoid reassignment of existing SECS faculty, thereby preserving instructional capacity within existing Bachelor of Science in Engineering (BSE) programs while ensuring sufficient faculty coverage to support ABET Engineering Technology Accreditation Commission expectations related to faculty sufficiency, qualifications, and instructional continuity.

Laboratory and Classroom Resources

The program will utilize existing facilities at the Macomb University Center (MUC), where three dedicated Engineering Technology laboratories support hands-on instruction:

- Engineering Technology Core Laboratory
- Mechatronics and Automation Laboratory
- Capstone and Systems Integration Laboratory

These laboratories are designed to support instructional capacity, safety, accessibility, and applied learning outcomes consistent with ABET ETAC Criteria 5 through 7. No new building construction is required. Planned investments focus on equipment acquisition, targeted modernization of existing laboratory spaces, and modest infrastructure preparation in the program's first year.

Library Resources

An evaluation conducted by Kresge Library confirms that existing digital databases, journals, and engineering and technology collections adequately support the BSET curriculum. The proposal recommends only limited, targeted electronic book acquisitions, estimated at approximately ten titles in the first year and a small number annually thereafter. No new database subscriptions or recurring library expenditures are required.

III. Program Plan

A. Admission Requirements

- Unique GPA requirements, if any
- Academic term(s) and deadlines for applications for admission, if any
- Other specific admission requirements

The Bachelor of Science in Engineering Technology (BSET) follows the standard admission requirements of the School of Engineering and Computer Science (SECS) and is open to recent high-school graduates, transfer students, veterans, and adult learners.

Freshman Admission

Applicants are evaluated using SECS freshman criteria:

- Four years of high-school mathematics, including trigonometry
- Strong preparation in English composition
- Recommended high-school coursework in chemistry and physics
- High-school GPA ≥ 3.0 for direct admission to SECS
- Students admitted to OU with GPA < 3.0 enter as Engineering/Computer Science Candidates and must satisfy SECS internal-transfer requirements before declaring the BSET major

Placement testing determines initial math and writing placement but does not affect admission status.

Internal Transfer (within OU)

Students entering OU as Engineering/Computer Science Candidates, or transferring internally from other majors, must meet SECS internal-transfer standards. The proposal states that internal transfer into Engineering Technology requires minimum grades of C or higher in specified math and physics courses, including:

- **MTH 1222**, **MTH 1554**, or **EGR 1000**
- **PHY 1010** and **PHY 1100**, or their approved equivalents

Students become eligible to declare the BSET major once these criteria are met.

External Transfer Students

Transfer admission follows OU and SECS policies. The proposal specifies:

- Accepted transfer courses must carry grades of C– or higher
- Students must complete at least 30 credits at Oakland University, including 12 upper-division credits in the major (OU residency requirement)
- The program is designed for transfer pathways including AAS + MTA completion, but no additional BSET-specific GPA requirement is listed in the proposal

Application Terms and Deadlines

The proposal does not assign special deadlines or application terms for BSET. The program follows standard OU undergraduate admission cycles for Fall/Winter entry.

B. Degree requirements ******HLC requirement******

- Courses, credit hours and course prerequisite requirements - ***Appendix B***
- Identify new courses to be added and % of a course distance delivered

The Bachelor of Science in Engineering Technology (BSET) is a 90-credit (minimum) baccalaureate degree structured in accordance with ABET Engineering Technology Accreditation Commission (ETAC) Criterion 5 and Oakland University's General Education framework. The curriculum delivers a complete Engineering Technology spine (mathematics, science, ET Core, specialization blocks, and capstone) within a modernized, transfer-efficient structure.

Degree Completion Requirements
Students must satisfy all OU degree and residency requirements, including:

- Minimum of 30 credits completed at Oakland University, with
- At least 12 upper-division credits in Engineering Technology (ET) earned at OU.

Curriculum Structure
The degree consists of:

1. **Foundational Mathematics & Science**
    - Calculus I (required - MTH 1222 or MTH 1554)
    - Engineering Mathematics (integrated differential equations + linear algebra + modeling)
    - Applied Statistics
    - Two semesters of general Physics with labs
2. **Engineering Technology Core (2000-level)**
   Ten integrated ET lecture-lab courses covering:
    - Circuits and electronics
    - Automation and PLCs
    - Mechatronics
    - Data acquisition and instrumentation
    - Applied programming
    - System modeling and integration
3. **Specialization Pathways (3000- and 4000-level)**
   Three 4-credit lecture-lab blocks in areas such as:
    - Electrical & Computer
    - Mechatronics & Electro-Mechanical Systems
    - Industrial and Systems
    - Automation and AI
4. **Capstone Design Sequence**
    - **ET 4998** (Capstone I)
    - **ET 4999** (Capstone II)

      With required industry-informed, hands-on systems integration.
5. **Laboratory Requirements**
   All ET courses with labs are delivered at the Macomb University Center (MUC) in the following ABET-aligned labs:
    - ET Core Laboratory
    - Mechatronics & Automation Laboratory
    - Capstone & Systems Integration Laboratory

New Courses to Be Added
All ET prefix courses in the **program are newly created for the BSET**, including:

- ET 1200, ET 2000, ET 2010, ET 2020, ET 2030, ET 2040, ET 2050
- ET 3010, ET 3020, ET 4020, ET 4110-4431 (specialization blocks)
- ET 4998, ET 4999 (capstone sequence)

These new courses appear in Appendix B of the proposal and carry integrated lecture-lab formats.

Distance-Delivery Percentage
The proposal specifies that:

- **No more than 25% of the BSET may be delivered online or hybrid.**
- **Online/hybrid delivery is limited to AI-related and Professional Practice courses.**
- **All laboratory experiences and ET Core/specialization courses are delivered face-to-face at the MUC.**

Embedded Micro-Credentials

The program includes four embedded industry-recognized credentials, completed within required ET courses:

- FANUC Certified Robot Operator I
- Siemens Mechatronics Level 1
- OSHA-10 General Industry Safety
- Python for Automation

These micro-credentials supplement, but do not replace, ABET ETAC outcome assessment.

C. Intended program length (e.g. four years, 8 semesters, other) ******HLC requirement******

The Bachelor of Science in Engineering Technology (BSET) is designed as an accelerated 90-credit (minimum) baccalaureate program that can be completed in approximately three years of full-time study.

For transfer students entering with an MTA-complete Associate of Applied Science (AAS) in a related engineering-technology discipline, the program is structured for efficient completion through 2+1 and 3+0 pathways. These pathways typically include:

- ~60 credits transferred, and
- the final 30 Oakland University credits completed in upper-division Engineering Technology courses.

This structure aligns with OU residency requirements and is consistent with the transfer-optimized design emphasized throughout the program proposal.

D. Potential for collaboration with other units at OU

The BSET program strengthens collaboration across Oakland University by leveraging shared instructional, assessment, and support structures within SECS and the broader institution.

Instructional and Academic Collaboration

- The program aligns with and complements existing mechatronics, electrical, computer, and systems engineering programs through coordinated curriculum design, shared laboratory infrastructure, and consistent ABET ETAC alignment.
- Faculty from related SECS departments contribute to capstone evaluation, laboratory development, and continuous-improvement processes, ensuring coherence across engineering and engineering technology curricula.

Assessment and Accreditation Collaboration

- The program participates in SECS-wide assessment, accreditation, curriculum governance, and industry advisory board structures.
- ABET ETAC documentation, annual assessment evidence, and continuous-improvement cycles are integrated into the same SECS processes used for existing engineering programs.

Library and Academic Support Collaboration

- Students have full access to Kresge Library's digital and physical collections in engineering, technology, and computing.

- The proposal confirms equitable access for students enrolled at both the main campus and at the Macomb University Center (MUC).

Institutional and Administrative Collaboration

- Collaboration with OU Registrar, Financial Aid, Undergraduate Admissions, and Transfer Credit Evaluation offices supports the program's 2+1 and 3+0 pathways, ensuring accurate transfer articulation and compliance with OU residency requirements.

These collaborations strengthen alignment across SECS and the university, enhance student support, and ensure efficient implementation of the BSET program.

E. Plan for transfer credits

- Articulations with other community colleges, universities, or other institutions
- Assessment of how regional community college students will transfer to the proposed program

The BSET is designed as a transfer-optimized program aligned with Michigan's community-college ecosystem and OU's residency requirements.

Transfer Credit Policies

- Students may transfer up to 60 credits from accredited two-year institutions, provided courses carry a grade of C– or higher and meet SECS transfer-evaluation standards for content and learning outcomes.
- All students must complete a minimum of 30 credits at Oakland University, including at least 12 upper-division credits in Engineering Technology, to satisfy OU residency requirements.

Structured Transfer Pathways

The proposal identifies two primary completion pathways:

1. **2+1 Pathway**
   Students complete approximately two years, typically an AAS with MTA, at a partner community college, followed by one year (30 upper-division ET credits) at Oakland University.
2. **3+0 Pathway**
   Oakland University delivers the full 30-credit upper-division ET block on partner community-college campuses.
   - All instruction, assessment, grading, and transcript control remain with OU faculty.
   - This model allows students to complete all OU-delivered upper-division instruction at the partner site, while still completing at least 30 OU residency credits, including 12 upper-division ET credits.

Articulation Agreements

The proposal specifies that articulation agreements will be established or updated with key regional community-college partners, including:

- Oakland Community College (OCC)
- Macomb Community College (MCC)
- Henry Ford College (HFC)
  Additional agreements will be developed as enrollment and demand expand.

Transfer Evaluation and Alignment

OU's transfer-credit review process confirms:

- Outcome equivalence between community-college coursework and OU lower-division ET or prerequisite requirements
- Proper alignment with ABET ETAC Criterion 5 expectations
- Efficient pathways from AAS and MTA programs into upper-division ET coursework

This design supports Michigan's Industry 4.0, automation, and advanced-manufacturing talent strategy by providing clear, stackable, and affordable transfer routes from applied associate degrees to a fully ABET-aligned BSET.

IV. Curriculum Overview

A. Accreditation: If the program is in an area in which professional or specialized accreditation is available, identify the name of the accreditation agency; indicate the timetable and the resource commitments needed to achieve accreditation.

The Bachelor of Science in Engineering Technology (BSET) program is designed in preparation for future accreditation review by the ABET Engineering Technology Accreditation Commission (ETAC). The curriculum is structured in accordance with ABET ETAC Criterion 5 (Curriculum), as demonstrated through its mathematics and science foundations, integrated Engineering Technology Core, upper-division specialization pathways, laboratory-intensive instruction, and two-semester capstone sequence. Student policies governing admission, progression, and completion follow Oakland University and School of Engineering and Computer Science (SECS) requirements and are documented elsewhere in the program proposal.

Accreditation Agency: ABET – Engineering Technology Accreditation Commission (ETAC)

Timetable

Consistent with ABET policy, a program must graduate at least one cohort before seeking initial accreditation. The BSET's accelerated structure, with a minimum of 90 credits, enables full-time students to complete the program in approximately three years. Oakland University will pursue ETAC accreditation at the first available review cycle following graduation of the initial cohort, supported by established SECS assessment, documentation, and continuous-improvement processes.

Resource Commitments

Accreditation readiness is embedded in the proposal's five-year staffing and laboratory-development plan, which includes:

Full-Time Instructional Faculty (Special Instructors / Professors of Practice):

Year 1: 1 SI/PoP (Program Director)

Year 2: 2 SI/PoP

Year 3: 3 SI/PoP

Years 4: 4 SI/PoP

Years 5: 5 SI/PoP (steady state)

Adjunct Faculty:

• Year 1: 5 adjuncts

• Year 2: 7 adjuncts

• Years 3–5: 7 adjuncts (steady state)

Clerical Technical Assistant:

• 1.0 FTE beginning in Year 3 to support scheduling, assessment documentation, laboratory logistics, outreach, and transfer-pathway coordination.

Laboratory Resources:

A five-year equipment investment and modernization plan supports three dedicated Engineering Technology laboratories at the Macomb University Center:

• Engineering Technology Core Laboratory

• Mechatronics and Automation Laboratory

• Capstone and Systems Integration Laboratory

These instructional, administrative, and laboratory resources support delivery of the ABET-aligned curriculum, generation of direct assessment evidence, and execution of the continuous-improvement processes required for successful ETAC accreditation.

B. The total must equal the number of credits from below ****HLC requirement****

The BSET requires a minimum of 90 credits.
The example OU-start plan totals 93 credits, depending on General Education course selections, and fully satisfies OU policy and ABET ETAC Criterion 5.

a. Credits from New Courses Developed for the Program

48 credits (all new ET courses): All Engineering Technology–prefix (ET) courses are newly created for the BSET. These include:

Engineering Technology Core (30 credits) - 10 new courses

- ET 1200, ET 2000, ET 2010, ET 2020, ET 2030, ET 2040, ET 2050, ET 3010, ET 3020, and ET 4020.

Specialization Pathways (12 credits) - all new courses

Three 4-credit lecture-lab blocks from one of the four ET specialization sequences:

- Electrical & Computer ET (ET 4110–4131), Mechatronics & Electro-Mechanical ET (ET 4210–4231), Industrial & Systems ET (ET 4310–4331), and Automation & AI ET (ET 4410–4431)

Capstone / Professional Practice (6 credits) - all new

- ET 4998 and ET 4999

Total New ET Course Credits: 48 credits
This corresponds to ~53% of the degree, consistent with ABET ETAC guidance that technical content accounts for roughly one-third to two-thirds of the degree.

b. Credits from Existing OU Courses (Math, Science, GE)

45 credits (existing catalog courses)
These include:

Mathematics and Engineering Foundations

- MTH 1222 or MTH 1554 (Calculus I), EGR 1000, EGR 2600

Natural Science with Labs (existing OU courses)

- PHY 1010 + PHY 1100, PHY 1020 + PHY 1110

General Education (existing catalog courses)

Arts, Literature, Language & Culture, Social Science + Diversity, Global Perspectives + WIG, and the Natural Science & Technology / Knowledge Applications areas.

Total Existing Courses: 45 credits

c. Credits from Revised or Redesigned Courses

0 credits
No existing OU courses are revised for the BSET.
All new instructional content is delivered through new ET courses; all supporting math, science, and General Education courses remain unchanged and are used in their current form.

Total for degree (catalog credits): 48 (new) + 45 (existing) + 0 (revised) = 93 credits.

C. **Provide typical Plan of Study for students enrolled full-time in the program -*Appendix C ***HLC requirement******

The Bachelor of Science in Engineering Technology (BSET) is a 90-credit (minimum) baccalaureate program that can typically be completed in three years of full-time study. This accelerated timeline is enabled by Oakland University's General Education framework, the integrated Engineering Technology Core, and the program's transfer-efficient design.
A detailed semester-by-semester Plan of Study (OU-resident three-year pathway and transfer-optimized 2+1 and 3+0 variants) is provided in Appendix C, consistent with HLC expectations.

Lower-Division Foundation

Students complete the mathematics, science, and introductory Engineering Technology coursework required for upper-division study:

- **Mathematics and Engineering Foundations:**
    - MTH 1222 or MTH 1554 (Calculus I)
    - EGR 1000 (Engineering Mathematics)
    - EGR 2600 (Applied Engineering Analysis and Statistics)
- **Physics Sequence (with laboratories):**
    - PHY 1010 + PHY 1100
    - PHY 1020 + PHY 1110
- **Lower-Division Engineering Technology Core:**
    - ET 1200, ET 2000, ET 2010, ET 2020, ET 2030, ET 2040, ET 2050
      These courses develop foundational skills in applied programming, circuits and electronics, automation and PLCs, instrumentation, and systems fundamentals.
- **General Education (completed throughout Years 1–3):**
  Arts, Literature, Language & Culture, Social Science with Diversity, Global Perspectives with Writing-in-the-General-Education requirement, and Knowledge Applications.

Upper-Division Engineering Technology Core and Systems Integration

By the end of the second year, students complete the remaining Engineering Technology Core courses that prepare them for all specialization pathways:

- **Upper-Division ET Core:**
    - ET 3010, ET 3020, and ET 4020
      These courses deepen competency in mechatronics, controls, industrial networking, instrumentation, and data-enabled and AI-supported systems.

Specialization Pathway and Senior Design (Final Two Semesters)

Each student completes **one 12-credit specialization pathway**, selected from:

- Electrical and Computer Engineering Technology (ET 4110–4131)
- Mechatronics and Electro-Mechanical Systems Technology (ET 4210–4231)
- Industrial and Systems Engineering Technology (ET 4310–4331)
- Automation and Artificial Intelligence Engineering Technology (ET 4410–4431)

Each specialization consists of **three integrated 4-credit lecture–laboratory courses**, delivered over two semesters with no standalone lab credits.
Students then complete the **ABET-aligned two-semester capstone design sequence**:

- ET 4998 – Capstone Design I
- ET 4999 – Capstone Design II

The capstone experience integrates engineering standards, ethics, professional practice, systems integration, and multidisciplinary teamwork through applied, industry-informed projects.

D. Provide course descriptions or syllabi for all new courses in the program - ***Appendix D ***HLC requirement******

Appendix D contains the catalog-ready course descriptions and sample syllabi for all newly developed Engineering Technology (ET) courses required for the BSET degree. This includes every ET course from ET 1200 through ET 4999, covering the full Engineering Technology Core, all four specialization pathways, and the two-semester capstone design sequence.

The appendix provides for each new course:

- Official catalog description
- Credit hours and lecture/lab distribution
- Prerequisites and corequisites
- Learning outcomes mapped to ABET ETAC outcomes
- Major laboratory activities, projects, and assessment components
- Delivery modality, including confirmation that ET Core, specialization, and capstone labs are delivered face-to-face at the Macomb University Center
- Alignment with ABET ETAC Criterion 5 (curriculum) and Criterion 7 (continuous improvement)

These materials satisfy the HLC requirement that all new program courses include detailed learning objectives, assessment measures, and instructional formats.

E. Academic Progress – Probation – Dismissal, ***if applicable***

- Provide criteria by which a student is evaluated on academic progress
- Explain the steps that lead to probation and dismissal from the program

The BSET program follows Oakland University and SECS academic-standing policies for monitoring progress, probation, and dismissal. The proposal does not introduce separate or additional rules; therefore, all BSET students are evaluated using the same criteria applied to other SECS undergraduate majors.

Academic Progress Evaluation

Student progress in the BSET is monitored through:

- **Completion of prerequisite sequences** in mathematics, physics, and Engineering Technology courses.
- **Minimum grade requirements** in foundational technical courses used for internal transfer eligibility (e.g., **C or higher** in required math and physics courses such as MTH 1222/1554, EGR 1000, PHY 1010/1100, PHY 1020/1110).

- **Successful completion of the ET Core**, which serves as the platform for specialization coursework and the senior capstone sequence.
- Ongoing monitoring through SECS advising systems and university early-alert processes, consistent with existing SECS policy.

Probation and Dismissal Process

Because the BSET does not have a program-specific probation or dismissal policy, students follow standard OU and SECS academic-standing regulations, including:

- Placement on academic probation when a student's cumulative GPA, semester GPA, or repeated-course performance violates university academic-standing thresholds.
- Required participation in academic advising or success-planning measures when flagged through SECS early-alert monitoring.
- Dismissal from SECS when students fail to meet university academic-standing requirements, exceed allowed repeat limits in required technical courses, or do not meet minimum grade requirements necessary for progression into upper-division ET coursework.

These procedures ensure consistent enforcement of academic expectations across all SECS programs while supporting student success through structured intervention and advising.

F. Academic oversight and direction for the program

- Provide the name and position (or title) of the individual who will be responsible for the success of this program, and give the percentage of this individual's time that will be dedicated to the program

Academic Oversight and Program Administration

Program oversight for the Bachelor of Science in Engineering Technology (BSET) is housed within the School of Engineering and Computer Science (SECS).

Program Director

A full-time Special Instructor / Professor of Practice will serve as Program Director and will be responsible for the overall academic leadership, operational coordination, and accreditation readiness of the BSET program. The Program Director will be appointed prior to program launch.

Consistent with SECS instructional workload norms, the Program Director role represents approximately 25–30% administrative workload allocation, implemented through a reduced teaching assignment dedicated to program leadership.

Primary responsibilities include:

• Leading ABET Engineering Technology Accreditation Commission (ETAC) accreditation preparation, documentation, assessment cycles, and continuous-improvement processes

• Coordinating community-college transfer pathways, including 2+1 and approved 3+0 delivery partnerships
• Overseeing program advising structures, curriculum governance processes, and course scheduling coordination
• Supporting industry engagement, including capstone project sponsorship and advisory board collaboration
• Coordinating laboratory instructional planning, equipment utilization, and applied instructional quality assurance

This administrative assignment ensures sustained academic oversight while maintaining alignment with SECS faculty workload policies and institutional governance expectations.

Faculty Capacity Supporting Oversight

Program oversight is supported by a scalable full-time instructional faculty structure composed of Special Instructors / Professors of Practice providing disciplinary coverage across automation, mechatronics, circuits, control systems, industrial artificial intelligence, instrumentation, and systems integration.

Projected full-time instructional faculty supporting the program are as follows:

Year 1: 1 SI/PoP (Program Director)

Year 2: 2 SI/PoP

Year 3: 3 SI/PoP

Years 4: 4 SI/PoP

Years 5: 5 SI/PoP (steady state)

This staffing structure ensures sufficient faculty coverage to support curriculum oversight, laboratory development, student assessment, accreditation documentation, and continuous improvement throughout program growth and at steady state, consistent with ABET ETAC Criteria 6 and 7 expectations.

Governance Structure

The Program Director operates within established SECS governance and reporting structures, including coordination with:

• The SECS Dean's Office
• SECS assessment and accreditation leadership
• The SECS Industry Advisory Board
• SECS curriculum, scheduling, and undergraduate program committees

These structures collectively ensure effective academic oversight, institutional accountability, accreditation compliance, and ongoing program improvement.

G. Interdisciplinary programs

- Academic home - primary **college/school and department home** for the program
- Participating academic units

- Statement of support from the Deans and department chairs with responsibility for providing courses and faculty for the program.

Academic Home

- Primary College/School: School of Engineering and Computer Science (SECS)
- Program Home: Engineering Technology (BSET) program within SECS

SECS is responsible for curriculum oversight, assessment, accreditation preparation, faculty staffing, and administrative support for the BSET.

Participating Academic Units

Although the BSET has a single primary academic home in SECS, the curriculum requires existing contributions from the following OU academic units:

- **School of Engineering and Computer Science (SECS):**
  - Provides all Engineering Technology (ET) courses
  - Provides Engineering Foundation courses (EGR 1000, EGR 2600)
  - Oversees program governance, ABET continuous-improvement processes, industry advisory engagement, and laboratory instruction
- **College of Arts and Sciences (CAS):**
  - Provides existing catalog courses in:
    - Mathematics: Calculus I (MTH 1222 / 1554)
    - Physics: PHY 1010 + 1100 and PHY 1020 + 1110 (Physics I and II with labs)
  - Provides General Education courses in Arts, Literature, Social Science + Diversity, Language and Culture, and Global Perspectives
  - No new CAS courses or faculty are required to support the BSET

These units contribute through existing course inventories; no cross-college resource reallocations or new shared hires are requested.

Statements of Support

- Letters of support from participating academic units and administrative stakeholders are included in the Template Appendix (as designated).
- Letters of support from industry partners and employers appear in Appendix H of the Template (based on your template structure).
- Because all supporting courses outside SECS already exist in the catalog, no new curricular commitments are required from other colleges.

Interdisciplinary Nature

The BSET curriculum integrates interdisciplinary content—automation, robotics, mechatronics, industrial systems, and applied AI—but maintains a single academic home in SECS, ensuring consistent oversight, accreditation alignment, and program quality.

H. Primary target audience for the program (e.g., full-time, part-time, traditional college age, working adults, transfer students, military personnel)
******HLC requirement******

The BSET program is intentionally designed for a diverse, transfer-heavy, and workforce-oriented student population. The proposal identifies the following primary audiences:

- **Community college graduates** completing an MTA-aligned AAS in an engineering-technology field, particularly those seeking streamlined completion through 2+1 or 3+0 pathways.
- **Working adults, military veterans, and non-traditional learners** seeking career advancement or upskilling in automation, robotics, mechatronics, industrial systems, and applied AI.
- **Traditional college-age students** prefer an applied, hands-on, three-year engineering-technology pathway rather than a traditional four-year, 120-credit engineering program.
- **First-generation and underserved students** seeking an accessible and affordable STEM degree aligned with regional workforce needs.

The program accommodates both full-time and part-time enrollment, with particular emphasis on full-time transfer students entering through structured 2+1 and 3+0 pathways with regional community colleges.

I. Source of Students (e.g., new target population, current enrollment shift, local community demand)
******MASU requirement******

The BSET's projected enrollment is based on clearly defined student sources identified in the proposal:

1. New External Transfer Students (Primary Source)

The largest share of enrollment comes from regional community colleges, including:

- Oakland Community College (OCC)
- Macomb Community College (MCC)
- Henry Ford College (HFC)
- Additional Michigan community colleges with engineering-technology AAS programs

Students enter through AAS + MTA pathways using structured 2+1 and 3+0 models, making the program highly attractive to transfer populations seeking efficient, low-cost completion.

2. New Direct-from-High-School Students

The program attracts traditional college-age students interested in:

- A three-year applied engineering-technology degree
- Hands-on instruction in automation, robotics, mechatronics, and applied AI
- A faster, more affordable STEM pathway compared to traditional four-year engineering programs

3. Internal OU Transfers (Modest Contribution)

The proposal identifies a small number of internal transfers, approximately 10 students per year, who shift from other OU majors into Engineering Technology.

- These students increase program headcounts
- They are not counted as new-revenue students in the financial model
- They improve retention by providing an appropriate applied pathway for students whose interests align with ET rather than BSE programs

4. Alignment With Regional and State Demand

This student mix reflects:

- Strong Southeast Michigan employer demand in automation, robotics, mechatronics, AI, and smart manufacturing
- Michigan's statewide Industry 4.0, EV, mobility, and electrification initiatives
- The proposal's emphasis on creating transfer-efficient, workforce-aligned STEM capacity at OU.

J. Recruitment Plan

Recruitment for the BSET leverages both existing Oakland University enrollment infrastructure and new program-specific initiatives designed to reach transfer, adult, and traditional student populations.

Community-College Pipelines
The proposal identifies community colleges as the program's primary recruitment source. Recruitment activities include:

- Establishing and promoting formal 2+1 and 3+0 pathways with MCC, OCC, HFC, and additional partners
- Coordinated advising and transfer-credit evaluations
- Joint information sessions and early audit reviews for AAS + MTA students

These pathways are highlighted in all transfer-oriented recruitment materials.

Targeted Outreach

- On-site visits, presentations, and information events at regional community colleges
- Participation in transfer fairs, AAS program visits, and advising events
- Coordination with OU admissions and transfer leadership to support seamless application processes

Digital and UCM-Aligned Marketing

Recruitment is integrated into OU's digital and marketing plan administered by University Communications & Marketing (UCM), using:

- Web presence and landing pages emphasizing the three-year, 90-credit structure
- Social media campaigns highlighting automation, robotics, mechatronics, and applied AI
- Email outreach targeting prospective transfer and first-year STEM students
- Materials reinforcing strong employer demand and ET-aligned career outcomes

Industry and Alumni Engagement
Recruitment efforts incorporate the program's strong employer and alumni relationships through:

- Employer-hosted events spotlighting internships, co-ops, and capstone sponsorships
- Promotion of BSET as an applied talent pipeline aligned with southeast Michigan's workforce needs
- Alumni engagement for storytelling, mentoring, and outreach opportunities

Budget Alignment
Recruitment activities and projected enrollment flows are reflected in the program's five-year budget and revenue plan (Appendix E), ensuring aligned investments in transfer outreach, advising, marketing, and industry engagement.

K. Planned enrollment

- How has the estimated program demand been factored into realistic enrollment projections? ******HLC requirement******
- Describe how demand has been used in planning and budgeting to develop a quality program that can be sustained? ******HLC requirement******
- What future growth is anticipated and how will it be managed? ******HLC requirement******
- Describe how this proposal will shift current students from current programs (which programs) vs. attracting new students
- Provide evidence of student enrollment at peer institutions that offer the same/similar program using data obtained from IPEDS (OIRADA)

Program Demand and Enrollment Projections

The proposal adopts a most-likely enrollment scenario grounded in regional workforce demand, established community-college transfer pipelines, and Oakland University's historical transfer patterns. Total annual new-student intake (including internal transfers) is projected as follows: Year 1: 50; Year 2: 75; Year 3: 90; Year 4: 95; and Year 5: 100 students. Of these totals, approximately 40, 65, 80, 85, and 90 students, respectively, are projected to be external, revenue-generating entrants and are included in financial modeling. Approximately 10 internal transfers per year are incorporated into enrollment planning but excluded from revenue calculations to maintain conservative financial assumptions.

Applying proposal-specified retention and progression assumptions, cumulative program headcount (including internal transfers) is projected at approximately:

- Year 1: ~50
- Year 2: ~118
- Year 3: ~214

• Year 4: ~269
• Year 5: ~304

These projections reflect realistic demand informed by regional AAS and MTA completion patterns, demonstrated interest in applied Engineering Technology education, and workforce needs associated with Michigan's Industry 4.0 economic priorities.

Use of Enrollment Projections in Program Planning

Enrollment projections directly inform instructional and operational planning, including:

• Phased growth in full-time Special Instructor / Professor-of-Practice staffing
• Adjunct instructional capacity and laboratory-section scheduling
• Utilization of three dedicated Engineering Technology instructional laboratories
• Advising and administrative coordination supported through the Clerical Technical Assistant role
• Implementation of the five-year laboratory equipment acquisition and modernization plan

Under the SBRC most-likely financial scenario, the program incurs an initial implementation-year net loss in Year 1, transitions to a positive annual net position in Year 2, and achieves cumulative break-even during Year 3. Thereafter, the program generates increasing annual surpluses consistent with the approved financial model. These results demonstrate that projected enrollment demand supports a financially sustainable, ABET-aligned instructional program.

Future Growth and Enrollment Management

Program growth beyond Year 5 will be managed through:

• Scaling adjunct instructional capacity and laboratory-section offerings in response to enrollment trends
• Adding full-time Special Instructors as needed to maintain instructional quality and faculty sufficiency
• Sustaining ABET ETAC Criteria 6–7 compliance in faculty coverage, assessment processes, and continuous improvement
• Expanding 3+0 delivery partnerships with additional community-college collaborators

This approach enables controlled program expansion while preserving applied instructional quality and laboratory effectiveness.

Impact on Existing Enrollment

The proposal anticipates approximately 10 internal transfers per year from other Oakland University majors. These students contribute to overall BSET headcount but are excluded from revenue modeling and are not expected to materially reduce enrollment in existing Bachelor of Science in Engineering programs. Most program growth is projected to originate from external transfer pathways and direct-from-high-school entrants.

Peer-Program Context

The proposal benchmarks Oakland University's projected enrollment trajectory against established Engineering Technology programs at Michigan State University, Wayne State

University, and Purdue Polytechnic. Publicly available enrollment data from these peer institutions indicate stable, workforce-aligned demand for Engineering Technology degrees, supporting the feasibility of the BSET program's projected growth trajectory.

L. Advising students

- Describe the current academic advising structure and how the new program will be supported by advising
- Provide the current academic adviser:student ratio

Academic advising for the Bachelor of Science in Engineering Technology (BSET) is fully integrated into the existing School of Engineering and Computer Science (SECS) advising framework. This structure already supports engineering and computer science programs and provides immediate capacity for BSET students. Dedicated BSET advising specialists receive targeted training in applied ET pathways, experiential components, prerequisite sequencing, and transfer requirements.

Advising Structure and Integration with SECS

- The program uses the established SECS Advising Office as its foundation.
- Advisers are cross-trained in:
  – Curriculum mapping for all BSET concentrations (Electrical, Mechatronics, Computer/AI, Industrial/Systems).
  – Transfer-equivalency review for OCC, HFC, MCC, and other partners.
  – Scheduling and sequencing of laboratory-intensive ET Core and specialization courses.
  – Integration of career services, résumé support, and cooperative-education pathways.

Student-Centered Advising Approach

- Each student is assigned a primary adviser who develops an individualized academic plan based on transfer status, prerequisite standing, and expected graduation timeline.
- Proactive advising is used, including mid-semester checks and early alerts.
- Transfer students receive structured onboarding at MUC and other delivery locations, with guidance tailored for MTA-complete and associate-degree transfers.

Career and Professional Development Integration

- Advisers coordinate closely with the OU Career and Life Design Center to connect students with internships, co-ops, and industry-sponsored projects beginning in the junior year.

Adviser-to-Student Ratio and Resource Planning

- SECS currently maintains an advising ratio of approximately **1:300**.
- Years 1–2: Existing SECS advisers support BSET with program-specific training.

- Years 3–5: One full-time adviser (or equivalent FTE) is added as enrollment exceeds 150 students, targeting a ratio of **~1:250**, aligned with best practices in STEM advising.

Residency and Pathway Compliance

- All students must complete a minimum of **30 OU credits**, including in 3+0 pathways where OU delivers the final upper-division coursework on partner campuses.
- This structure ensures full compliance with OU residency policies and ABET ETAC delivery standards.

This advising model supports retention, timely completion, and strong workforce alignment and is fully consistent with the advising section of the proposal.

M. Retention Plan

- Describe the process for assessing and improving student persistence and completion ******HLC requirement******

The BSET retention plan integrates proactive advising, structured progression requirements, and a formal ABET-aligned assessment system to monitor and improve student persistence and completion.

Proactive Advising and Early-Alert Systems

The program uses the established SECS advising framework, which includes:

- Individualized academic plans for each student based on transfer status and expected graduation timeline
- Mid-semester progress checks and coordinated early-alert interventions
- Structured onboarding for transfer students, including AAS/MTA pathway reviews and scheduling support for lab-intensive ET coursework

These mechanisms identify risk factors early and reduce attrition.

Clear Progression Milestones

Retention is supported through well-defined milestones embedded in the proposal:

- Minimum grade requirements (e.g., **C or higher** in foundational math and physics courses such as MTH 1222/1554, EGR 1000, PHY 1010+1100)
- Completion of the ET Core before entry into upper-division specialization pathways
- Prerequisite and co-requisite sequencing that ensures students enter advanced ET work with adequate preparation

These requirements limit late-stage failures and support timely completion.

Assessment and Continuous Improvement

The BSET follows the formal ABET ETAC assessment process, in which:

- Student outcomes (ETAC 1–5) are mapped to evidence in math, science, ET Core, pathway courses, and the two-semester capstone sequence
- Data are collected annually and stored in the SECS ABET repository
- Faculty review the results as part of continuous improvement, adjusting curriculum, pedagogy, laboratory activities, and student support structures

This ensures ongoing alignment with ABET standards and enhances persistence.

Retention Benchmarks in Enrollment Modeling

The program's five-year enrollment model incorporates explicit retention benchmarks from the proposal:

- **85%** Year-1 → Year-2 retention
- **80%** Year-2 → Year-3 retention
- Approximately **30% early completion** among Year-3 cohorts

These benchmarks provide quantitative targets for monitoring persistence, informing staffing, scheduling, and resource allocation.

This retention plan satisfies the HLC requirement by documenting a clear, evidence-based process for assessing and improving persistence and completion, fully aligned with existing SECS advising, assessment, and ABET quality systems.

V. Off-Campus or Online Information

A. Location (e.g. main campus, OUWC, MUC, online, other) ***HLC requirement***

The BSET is delivered at multiple approved Oakland University instructional sites, all operating under OU's academic control, faculty oversight, and assessment structures.

1. Macomb University Center (MUC) – Primary Delivery Site
MUC is the primary instructional location for the BSET and houses all laboratory-based Engineering Technology courses.

- Three dedicated ET laboratories support the curriculum:
  - ET Core Laboratory
  - Mechatronics & Automation Laboratory
  - Capstone & Systems Integration Laboratory
- OU owns and maintains all laboratory equipment.
- Facilities are scheduled and managed through SECS under the existing OU–MUC partnership.
- All ET labs and hands-on instructional components are delivered **on-ground** at MUC.

2. Oakland University Main Campus
The main campus provides:

- General Education courses
- Mathematics and Physics (Calculus I; Physics I–II with labs)
- Select upper-division ET lecture courses

  These courses use existing OU classrooms, laboratories, and academic services.

3. Partner Community-College Sites (Off-Campus "Degree Sites" for 3+0 Pathways)
For approved 3+0 pathways with regional community colleges (e.g., MCC, OCC, HFC):

- Students complete ≈60 credits at the community college.

- OU delivers the final ≥30 BSET upper-division credits on-site at the partner campus, taught by OU faculty.
- These locations qualify as HLC off-campus sites because a student can complete ≥50% of the BSET curriculum at those partner campuses.
- OU retains full control of curriculum, instruction, assessment, and academic supervision.

4. Online / Hybrid Delivery

- The BSET is not an online or distance-education program.
- Select ET lecture courses and Professional Practice content may use hybrid or online components.
- The overall program is capped at ≤25% hybrid/online delivery, and all ET laboratory courses remain on-ground.
- No course or site exceeds the 50% distance-delivery threshold that would classify the BSET as a distance-education program under HLC policies.

B. Explain how the quality, access, and cost considerations for "off-campus sites" or online program proposals will be assessed. ****HLC requirement****

An "off-campus site" is a place where instruction is taking place and students can:

- Complete 50% or more of the courses leading to a degree program;
- Complete a full degree program (degree site); OR
- Complete 50% or more of the courses leading to a Title IV eligible certificate

Quality, access, and cost for all BSET off-campus and hybrid locations are governed by the same academic, instructional, and assessment standards used for on-campus SECS programs. The proposal outlines the following mechanisms.

1. Curriculum and Outcomes Equivalence

- The same ABET-aligned curriculum, including the Engineering Technology Core, specialization pathways, and capstone design sequence, is delivered at all locations and in all approved modalities.
- Courses use common syllabi, learning outcomes, rubrics, and assessment artifacts maintained within the SECS ABET assessment system.
- Program Educational Objectives and ETAC Student Outcomes apply uniformly across all sites to ensure curricular equivalence.

2. Faculty Qualifications and Instructional Oversight

- All BSET courses at the Macomb University Center and at approved off-campus 3+0 delivery sites are taught by Oakland University faculty who meet SECS and university credentialing requirements.
- Faculty hiring, credential verification, evaluation, and teaching-load management follow established SECS and OU academic policies.
- Industry professionals may participate as guest lecturers or adjunct instructors only through OU appointment procedures and in full alignment with course outcomes.

3. Facilities, Laboratories, and Equipment

- All Engineering Technology laboratories supporting the BSET program are located at the Macomb University Center (MUC).

- Oakland University owns all laboratory equipment, and SECS oversees scheduling, maintenance, and instructional quality.
- A five-year Engineering Technology laboratory and equipment investment plan totaling approximately $700,000 is included in the proposal to ensure adequate facilities, laboratory modernization, and compliance with ABET ETAC requirements.
- The equipment plan includes:
  - Year 1: $100,000 for initial ET Core startup equipment, infrastructure upgrades, and laboratory preparation
  - Year 2: $250,000 for pathway expansion, robotics, automation, instrumentation, and software licensing
  - Year 3: $200,000 for AI, manufacturing, mechatronics, hydraulics, and capstone systems integration equipment
  - Years 4–5: $75,000 annually for calibration, maintenance, replacement, and targeted upgrades

4. Assessment, Continuous Improvement, and Site Monitoring

- All direct assessment evidence, including examinations, laboratory work, projects, and capstone deliverables, is collected within a single SECS ABET assessment repository, regardless of delivery site.
- Annual reviews are conducted through SECS assessment governance structures and the Industry Advisory Board.
- Any performance gaps identified across locations or delivery modalities result in documented continuous improvement actions.

5. Access and Student Support at Off-Campus Sites
Students enrolled at the Macomb University Center and at partner community-college locations have full access to:

- SECS academic advising and structured transfer onboarding
- OU library resources, including digital collections
- Career and Life Design Center services, internships, and cooperative education opportunities
- Faculty office hours, tutoring resources, and capstone mentoring

6. Cost and Financial Sustainability

- The five-year budget pro forma incorporates all instructional, facility, and equipment costs associated with delivery at the Macomb University Center and approved off-campus locations.
- Under the SBRC most-likely financial scenario, the program incurs an initial implementation-year net loss in Year 1, transitions to a positive annual net position in Year 2, and achieves cumulative break-even during Year 3. Thereafter, the

program generates increasing annual surpluses consistent with the approved financial model.

- Off-campus 3+0 delivery leverages existing community-college facilities together with OU-owned equipment, avoiding new construction costs and supporting sustainable off-campus operations consistent with HLC expectations.

Quality, access, and cost at off-campus and hybrid locations are assured through a single ABET-aligned curriculum and assessment system, OU faculty control of instruction, OU-owned Engineering Technology laboratories at the Macomb University Center, full integration of advising and student services, and a five-year financial plan that fully supports all off-campus instructional needs.

VI. Needs and Costs

A. New resources needed for the proposed program ****HLC requirement****

- Number of new faculty to be hired
- Cost of faculty retraining or continuing education
- Source of new resources

1. Number of New Faculty and Staff Positions

Instructional staffing plan (steady state – Year 5):

- 5 Full-Time Special Instructors / Professors of Practice (including Program Director)
- 7 Adjunct Instructors (steady-state instructional support)

Administrative and instructional support:

- 1 Full-Time Clerical Technical Assistant, beginning in Year 3, with salary and escalation consistent with the approved SBRC financial model

Full-time instructional staffing grows in alignment with enrollment and specialization rollout:

- Year 1: 1 SI/PoP (Program Director)
- Year 2: 2 SI/PoP
- Year 3: 3 SI/PoP
- Year 4: 4 SI/PoP
- Year 5: 5 SI/PoP

Adjunct instructional support grows as follows:

- Year 1: 5 adjuncts
- Year 2: 7 adjuncts
- Years 3–5: 7 adjuncts

2. Cost of Faculty, Staff, and Other New Resources

Instructional and Support Personnel (Five-Year Totals – SBRC Most-Likely Scenario):

- Full-Time Special Instructors / Professors of Practice: costs reflected in the approved five-year personnel model
- Adjunct Faculty: costs aligned with projected instructional section demand
- Clerical Technical Assistant: costs included in the approved administrative support trajectory beginning in Year 3

Facilities, Laboratories, and Equipment:

A five-year laboratory investment plan totaling approximately $700,000 supports development and modernization of three Engineering Technology instructional laboratories:

- Year 1: $100,000 (includes Macomb University Center infrastructure preparation)
- Year 2: $250,000
- Year 3: $200,000
- Year 4: $75,000
- Year 5: $75,000

Operating, Library, Marketing, and Instructional Support Costs:

- Laboratory supplies, software licensing, consumables, PPE, calibration, and operational support: approximately $35,000 annually, scaling with enrollment growth
- Library resource enhancement: approximately $6,000–$7,000 over five years
- Marketing and recruitment support (in coordination with University Communications and Marketing): approximately $110,000 over five years

3. Cost of Faculty Development and Continuing Education

The proposal identifies no additional budget requirement for faculty retraining or continuing education. Faculty development activities, including ABET-related workshops, continuous-improvement training, and instructional development, are supported within existing SECS professional-development resources.

4. Source of New Resources

The proposal identifies the following primary funding sources:

- Net tuition revenue from new BSET enrollment, based on Most-Likely, Best-Case, and Worst-Case enrollment scenarios presented in the financial Pro Forma (Appendix E)
- SECS and central institutional capital allocations supporting Year 1 laboratory establishment and Macomb University Center infrastructure preparation

- Marketing and outreach support coordinated through University Communications and Marketing (UCM) and SECS

Collectively, these funding sources support all new instructional personnel, administrative staffing, laboratory investments, and ongoing operating expenses required for successful program implementation and long-term sustainability.

B. Existing resources to be reallocated (e.g., closing a program, ending an initiative, existing faculty and staff who can support the proposed program)

The proposal states that the BSET requires no new SECS building construction and relies primarily on reallocation of existing physical spaces and existing university support structures, rather than reassigning faculty or closing programs.

1. Physical Space Reallocation

- **Macomb University Center (MUC)** will serve as the primary instructional site. Three existing rooms will be used for:
  – ET Core Laboratory
  – Mechatronics and Automation Laboratory
  – Capstone and Systems Integration Laboratory
  These are existing rooms that require equipment installation and modernization but do not require new construction.
- General Education, Mathematics, and Physics courses will utilize existing classrooms at both MUC and the OU main campus.

2. Central Services and Academic Support

- **Advising** is provided through the existing SECS advising framework, with BSET-specific expertise added as enrollment grows.
- **Admissions**, **career services**, industry outreach, and recruitment support draw on existing OU and SECS infrastructure, consistent with the proposal's UCM and enrollment-management plan.
- Library collections and digital resources are supported through existing OU Library systems, with modest incremental additions.

3. No Reallocation of Faculty or Instructional Lines

- The proposal states that no existing SECS faculty are reassigned to staff BSET courses.
- All instructional capacity for BSET (full-time faculty and adjuncts) is newly hired, not taken from existing academic programs.

4. No Program Closures or Reductions

- The BSET "does not reduce enrollment in existing BSE programs" and therefore no current program is being discontinued or downsized to support the new degree.

- The BSET attracts a distinct applied-technology population, particularly transfer students and working adults, minimizing impact on existing SECS enrollments.

C. 5-Year budget and revenue from program - *Appendix E ***HLC requirement****

Appendix E provides the complete five-year budget pro forma, including all instructional, laboratory, advising, administrative, and operating costs.
Five-Year Total Program Expenses (Most Likely Scenario): $3,372,998
Annual Total Expenses (Most Likely Scenario)
Year 1: $341,174
Year 2: $624,898
Year 3: $755,332
Year 4: $763,519
Year 5: $888,075

These figures reflect all salary, fringe benefits, operating costs, laboratory and equipment investments, library resources, administrative support, and marketing expenditures required for ABET-aligned program delivery. All values match the official SBRC pro forma included in Appendix E.

2. Revenue Model and Enrollment Basis
Revenue Logic
• Tuition revenue is generated only from external students, including OU-start students, external 2+1 transfers, and 3+0 partner-site cohorts.
• Internal OU transfers (approximately 10 students per year) are included for enrollment planning but excluded from revenue calculations, ensuring conservative and policy-aligned financial modeling.
Enrollment Basis (Most Likely Scenario – SBRC Aligned)
External, revenue-generating new-student intake:
Year 1: 40, Year 2: 65, Year 3: 80, Year 4: 85, and Year 5: 90
When adjusted for transfers vs OU Start students, revenue generating students become:
Year 1: 28, Year 2: 47, Year 3: 62, Year 4: 69, and Year 5: 74

Total new-student intake (external + internal transfers):
• Year 1: ~50
• Year 2: ~75
• Year 3: ~90
• Year 4: ~95
• Year 5: ~100
Cumulative enrollment (including internal transfers):
• Year 1: ~50
• Year 2: ~118
• Year 3: ~214
• Year 4: ~269
• Year 5: ~304
Retention and completion assumptions (consistent across scenarios):
• 85% retention from Year 1 → Year 2

• 80% retention from Year 2 → Year 3
• Approximately 30% early completion among the Year-3 cohort

3. Net Financial Position (Most Likely Scenario – Updated)

Based on the updated SBRC pro forma:

Most Likely Scenario

• Year 1: Net loss of **($77,961)**
• Year 2: Positive net position of **$80,140**
• Year 3: Net income of **$718,849**
• Year 4: Net income of **$1,222,508**
• Year 5: Net income of **$1,451,576**

Five-year cumulative net surplus: $3,395,111.

These results reflect conservative enrollment assumptions, exclusion of internal transfers from revenue, a scalable Special Instructor/Professor-of-Practice staffing model, controlled adjunct usage, and phased startup and equipment investments.

4. Scenario Analysis (Summary)

• **Most Likely Scenario:** SBRC-aligned, conservative, and financially positive beginning in Year 2
• **Best-Case Scenario:** Higher external intake accelerates surplus growth
• **Worst-Case Scenario:** Lower intake delays profitability but remains manageable through scalable staffing and laboratory utilization

Scenario modeling supports responsible enrollment-risk management and confirms the program's long-term financial sustainability.

D. Library needs – Include library assessment report - ***Appendix F **HLC requirement*****

The proposal identifies modest, targeted library needs to support the new BSET curriculum. Kresge Library's current engineering and technology collections already provide a strong baseline for the program, and only incremental additions are required to address gaps related to applied engineering technology, automation, mechatronics, industrial IoT, and AI-enabled systems.

Budgeted Library Support (Five-Year Total)

The proposal allocates a five-year total of approximately $6,000–$7,000 for BSET-specific library resources. This amount supports the acquisition of targeted materials that complement existing engineering collections.

Planned Investments

- Library investments focus on:
  - Enhanced access to digital and print materials in engineering technology, automation, robotics, and applied AI.
  - Updated e-journal subscriptions and standards databases aligned with ABET ETAC expectations for student outcomes and capstone design.
  - Supplementary resources that directly support laboratory courses, specialization pathways, and senior design.

Assessment and Adequacy

The proposal states that Kresge Library's existing engineering holdings already meet most instructional needs for the BSET. The incremental allocation is designed to fill specific curriculum-driven gaps, rather than replicate resources already available to SECS students. A full Library Assessment Report, including adequacy review and projected acquisitions, is included in Appendix F of the proposal and is referenced directly in the New Program Template

E. **UCM Assessment plan for recruiting and marketing needs (contact your UCM liaison)** ******HLC requirement******

The BSET proposal incorporates a defined University Communications & Marketing (UCM) plan with a five-year recruitment budget and clear performance metrics aligned with enrollment targets and audience profiles.

Recruiting and Marketing Activities

UCM works jointly with SECS and BSET program leadership to execute a coordinated communication and outreach strategy, including:

- Development of BSET-specific web pages, program branding, and short-form video content highlighting MUC laboratories and applied-technology pathways.
- Digital advertising campaigns targeted to regional community-college students, adult learners, and veterans.
- Participation in transfer fairs and information sessions at OCC, MCC, HFC, and additional partner institutions.
- Production of brochures, flyers, and print collateral supporting advisors, recruiters, and employer partners.
- Launch and partnership events held at the Macomb University Center and at employer/industry sites.

Marketing Budget

The proposal allocates a five-year marketing and recruitment budget of $110,000, distributed as: **Years 1–4:** $25,000 annually, **Year 5:** $10,000

Assessment and Performance Metrics

UCM and SECS will monitor marketing effectiveness and adjust strategies using quarterly analytics. Key metrics include:

- Website traffic patterns, inquiry forms, program-page engagement, and conversion from inquiry → application → enrollment.
- Transfer-student and first-year application counts, tracked against annual enrollment targets (50, 75, 100, 125, 150 new students).
- Attendance at transfer fairs, information sessions, and community-college events.
- Employer engagement indicators, including internship inquiries and capstone sponsorship interest.
- Overall enrollment growth relative to the most-likely scenario in the pro forma.

Compliance and Public Information Standards

All materials follow OU branding, accessibility, and accuracy standards. UCM's quarterly reporting cycle ensures iterative improvement and fulfills HLC expectations for transparent public information and data-driven assessment of recruiting effectiveness.

F. Classroom, laboratory, space, tech, renovation needs ******HLC requirement******

- What are the physical facilities and equipment needed to support the program
- Indicate the impact that the proposed change will have on the physical resources and laboratories that currently accommodate existing programs and services, or identify new laboratory and preceptor needs

The Bachelor of Science in Engineering Technology (BSET) program is centered physically at the Macomb University Center (MUC). The program will use existing instructional rooms and laboratory space at MUC, supplemented as needed by existing classroom and project space on Oakland University's main campus. No new building construction is required.

Instructional Classrooms

Technology-enabled classrooms at MUC will support active learning through modular seating, digital display systems, and hybrid-delivery capability.

General Education, mathematics, physics, programming, and selected ET lecture courses will use existing classroom capacity at MUC and, where appropriate, at the OU main campus.

No additional classrooms or new construction are required.

Dedicated Engineering Technology Laboratories at MUC

The proposal identifies three dedicated Engineering Technology laboratories, all located in existing MUC rooms that require equipment installation, modernization, and targeted infrastructure upgrades.

ET Core Laboratory

The ET Core Laboratory supports foundational instruction in circuits, automation, instrumentation, PLCs, embedded systems, and controls.

Equipment includes:

- Circuit benches and programmable power supplies
- Allen-Bradley PLC training stations and industrial I/O hardware
- Instrumentation and data-acquisition systems
- Embedded microcontroller kits
- Digital multimeters, oscilloscopes, and industrial sensors
- Safety lockout/tagout equipment and computing upgrades

This laboratory supports lower-division ET Core courses including ET 2010, ET 2030, and ET 2050.

Mechatronics and Automation Laboratory

The Mechatronics and Automation Laboratory supports robotics, electro-mechanical systems, motion control, hydraulics, and automation coursework.

Equipment includes:

- FANUC and collaborative robotic systems
- Mechatronics workstations and motion-control equipment
- Servo controllers, variable-frequency drives, and industrial communication networks
- Machine-vision systems and industrial safety hardware
- Hydraulic and electro-hydraulic training systems, including Festo and Amatrol platforms
- PLC/HMI-integrated fluid-power systems

This laboratory supports ET 2040, ET 3010, ET 3020, and specialization-pathway courses related to robotics, mechatronics, automation, and electro-mechanical systems.

Capstone and Systems Integration Laboratory

The Capstone and Systems Integration Laboratory supports upper-division systems integration, digital manufacturing, industrial AI, IIoT, instrumentation, and senior design.

Equipment includes:

- Data-acquisition and instrumentation systems
- Industrial PC platforms and AI-enabled computing systems
- Python, machine-learning, and industrial analytics toolchains
- AR/VR and digital-twin capability
- Prototyping, testing, and capstone project equipment

This laboratory supports ET 4020 and the ET 4998–ET 4999 capstone sequence.

Impact on Existing Resources and Facilities

The BSET program will use existing MUC rooms and current SECS classroom capacity. No new buildings, major renovations, or new laboratory construction are planned.

Oakland University will own all equipment deployed at MUC, while SECS will control scheduling and access to ensure priority use for BSET students.

General-purpose classrooms at MUC and the OU main campus remain sufficient to support General Education, mathematics, science, and supporting lecture courses.

The proposed program does not displace existing SECS programs, reduce access to current laboratories, or require reassignment of existing main-campus facilities.

Facility Investments and Technology Needs

The proposal includes a phased five-year facilities and equipment plan totaling approximately $700,000. This investment supports startup equipment, targeted infrastructure improvements, modernization, pathway rollout, capstone growth, and long-term laboratory sustainability.

Five-year equipment investments are as follows:

- Year 1: $100,000 for ET Core startup equipment, limited PLC trainers, data-acquisition systems, compute upgrades, targeted modifications to existing MUC laboratory space, and infrastructure improvements including power, networking, and safety systems
- Year 2: $250,000 for Electrical and Computer Engineering Technology pathway equipment, PLC benches, electronics instrumentation, robotics systems, and software licensing expansion
- Year 3: $200,000 for remaining specialization pathway equipment, mechatronics stations, AI and manufacturing systems, and capstone integration equipment
- Year 4: $75,000 for capstone-system upgrades, instrumentation refresh, maintenance, and replacement of high-use equipment
- Year 5: $75,000 for equipment renewal, calibration, AI hardware refresh, and lifecycle replacement of high-use systems

All equipment purchases are owned by Oakland University.

Ongoing Technology and Operational Support

Recurring operating costs include laboratory consumables, preventive maintenance, calibration, software licensing, PPE, and safety compliance.

Annual laboratory supplies and consumables are budgeted at approximately $35,000 per year and scale with enrollment growth. Software licensing for PLC, robotics, instrumentation, and AI platforms is included within the recurring operating budget.

Capacity and Future Growth

The planned laboratory model provides sufficient capacity for projected enrollment growth through Year 5.

- Maximum laboratory section size: 20 students
- Available capacity: 3 laboratories × 2 sections per day × 5 days per week = approximately 30 laboratory sections per week
- Required Year-5 demand: approximately 24–28 laboratory sections per week

Existing MUC laboratory space is sufficient to support steady-state BSET enrollment of approximately 300 students without additional construction.

This facility model is fully aligned with ABET ETAC Criterion 7 expectations for instructional space, laboratory adequacy, safety, modernization, and student access.

G. Equipment needs ******HLC requirement******

The BSET proposal includes a phased five-year equipment and infrastructure plan to support the three dedicated Engineering Technology laboratories located at the Macomb University Center (MUC). All equipment is required to support ABET-aligned, hands-on instruction in automation, robotics, mechatronics, instrumentation, industrial AI, and systems integration.

1. Capital Equipment Plan (Five-Year Schedule)

Year 1 – Initial Laboratory Startup and ET Core Launch ($100,000)

Year 1 funding supports initial ET Core instructional equipment, targeted upgrades to existing MUC laboratory space, and limited startup equipment needed for program launch.

Equipment includes:

- Allen-Bradley PLC training stations and industrial control hardware
- Instrumentation and data-acquisition systems
- Embedded microcontroller kits
- Digital multimeters, oscilloscopes, power supplies, and industrial sensors
- Limited robotics and mechatronics startup equipment
- Compute and networking upgrades
- Safety systems and lockout/tagout equipment

This Year 1 investment also includes approximately $100,000 in MUC infrastructure preparation, including power, networking, safety systems, and targeted modifications to existing laboratory rooms.

Year 2 – Electrical and Computer ET Pathway Expansion ($250,000)

Year 2 funding supports the launch of the Electrical and Computer Engineering Technology pathway and expands laboratory capability across ET Core and pathway instruction.

Equipment includes:

- Additional PLC benches and electronics instrumentation
- Expanded robotics systems and automation hardware
- DAQ and instrumentation upgrades
- Software licensing expansion
- Industrial communication systems and networking hardware
- Electrical and computer engineering technology pathway equipment

Year 3 – Full Pathway Build-Out and Advanced Systems Equipment ($200,000)

Year 3 funding supports the rollout of the remaining specialization pathways and expansion of advanced instructional capability.

Equipment includes:

- AI and manufacturing pathway equipment

- Machine-vision systems and AI-enabled inspection stations
- Expanded robotics, mechatronics, and motion-control systems
- Capstone systems-integration equipment
- Industrial IoT and smart-manufacturing systems
- Hydraulics and electro-hydraulics instructional systems

Year 4 – Capstone and Instrumentation Refresh ($75,000)

Year 4 funding supports:

- Capstone-system upgrades
- Replacement of high-use instrumentation
- Maintenance and replacement of heavily used equipment
- Test-equipment refresh to maintain laboratory currency

Year 5 – Equipment Renewal and AI Hardware Refresh ($75,000)

Year 5 funding supports:

- Refresh of high-use instructional stations
- AI hardware and compute upgrades
- Calibration and preventive maintenance
- Replacement of aging equipment and lifecycle renewal

Total Five-Year Capital Equipment Investment

Total five-year equipment investment is approximately $700,000.

This includes the Year 1 infrastructure preparation at MUC and aligns with the approved SBRC pro forma.

2. Infrastructure and Recurring Technical Costs

Infrastructure Preparation (Year 1)

A one-time Year 1 investment of approximately $100,000 supports targeted infrastructure improvements at MUC, including:

- Electrical and power-distribution upgrades
- Networking and industrial communications capability
- Safety systems and environmental controls
- Laboratory-room modifications and configuration

Recurring Laboratory Operations (Years 1–5)

Recurring laboratory operating costs are funded separately through the Supplies and Services line of the SBRC pro forma.

Annual recurring costs are estimated at approximately $35,000 per year and scale with enrollment growth.

Recurring costs include:

- Laboratory consumables and replacement components
- PPE and safety compliance
- Software renewals and licensing
- Preventive maintenance and calibration
- Equipment servicing and repair

3. Purpose and Accreditation Alignment

All equipment purchases directly support:

- ABET ETAC Criterion 5 expectations for curriculum, laboratory experiences, experimentation, and use of modern engineering technology tools
- ET Core instruction in circuits, electronics, automation, instrumentation, robotics, mechatronics, and controls
- Specialization pathways in Electrical and Computer Engineering Technology, Mechatronics and Electro-Mechanical Systems Engineering Technology, Industrial and Systems Engineering Technology, and Automation and AI Engineering Technology
- ET 4998 and ET 4999 senior design and systems-integration projects

The equipment plan ensures that laboratory capability scales appropriately to support approximately 300 students by Year 5 while remaining within the existing MUC laboratory footprint.

VII. Appendices

A. Abbreviated Faculty Vitae ***HLC requirement***

Abbreviated Faculty Vitae for the proposed BSET program

Each full-time instructional faculty member brings the academic preparation, applied industry experience, and instructional expertise required to deliver the Bachelor of Science in Engineering Technology (BSET). Collectively, the instructional faculty provide comprehensive coverage across electrical systems, mechatronics, automation, applied artificial intelligence, instrumentation, and systems integration, supporting curriculum delivery, student learning, assessment, and continuous improvement in accordance with ABET Engineering Technology Accreditation Commission expectations and Higher Learning Commission faculty credentialing requirements.

Full-Time Instructional Faculty Structure

Special Instructors / Professors of Practice (SI/PoP) form the core instructional faculty for the BSET program.

The program launches with one full-time SI/PoP faculty (Program Director) and expands in alignment with enrollment growth and specialization pathway implementation to five or potentially six full-time SI/PoP faculty in Year 5 at steady state.

These full-time instructional faculty are responsible for delivery of Engineering Technology core courses, specialization pathway instruction, laboratory coordination, capstone supervision, student advising support, assessment activities, and continuous improvement processes consistent with ABET ETAC requirements.

All full-time instructional faculty hold a minimum of a master's degree in engineering, engineering technology, or a closely related applied discipline, supported by significant professional industry experience.

Adjunct Faculty

Adjunct faculty provide targeted instructional support in laboratory-intensive courses, specialized pathway topics, and evening or weekend sections as enrollment grows.

At steady state, the program utilizes approximately five adjunct instructors, primarily sourced from regional industry sectors including automation, advanced manufacturing, robotics, and industrial systems integration.

Title / Role	***Minimum Credentials***	***Professional Experience***	***Areas of Expertise***	***Qualified Courses / Domains***
Program Director (SI/PoP)	Master's minimum in engineering, engineering technology, or related field;	10-15 yrs applied engineering, curriculum leadership, ABET experience	Systems integration, automation, continuous improvement	ET 2000-level core, automation systems, capstone supervision (ET 4998-ET 4999)

Title / Role	*Minimum Credentials*	*Professional Experience*	*Areas of Expertise*	*Qualified Courses / Domains*
	terminal degree preferred			
SI/PoP Faculty - Electrical, Controls & Instrumentation	Master's minimum in Electrical, Computer, or related engineering field	5-10 yrs circuits, PLCs, industrial controls, networks	Circuits, PLCs, instrumentation, digital/industrial communications	ET 2010, ET 2030, ET 2050, ET 3020, ET 4110-level electives
SI/PoP Faculty - Mechatronics, Robotics & Systems	Master's minimum in Mechatronics, Mechanical, Robotics, or related engineering field	5-10 yrs robotics, motion systems, electromechanical integration	Robotics, sensors/actuators, mechatronics, automation	ET 2040, ET 3010, ET 4210/4220/4221, systems-integration labs
Additional SI/PoP Faculty (5 positions steady state, including Program Director)	Master's in engineering, engineering technology, or related discipline	5+ yrs applied engineering or manufacturing systems	Applied labs, PLCs, robotics, instrumentation, Industry 4.0	ET Core labs, pathway labs, technical electives, co-supervised capstone
Adjunct Faculty (7 steady state)	*Master's + industry specialization*	*10+ yrs practice in robotics, automation, cybersecurity, manufacturing*	*Domain-specific applied instruction*	*Upper-division labs, specialized electives, evening/weekend sections*

Faculty Qualification Summary

Academic Preparation

- All full-time instructional faculty hold a minimum of a master's degree in engineering, engineering technology, or a closely related applied discipline, supported by substantial professional industry experience relevant to the courses they teach.
- The instructional faculty complement collectively provides sufficient technical breadth, applied expertise, and instructional capability to support effective delivery of the Engineering Technology curriculum, laboratory instruction, and continuous assessment activities.
- Faculty qualifications meet Higher Learning Commission Assumed Practice B.2 expectations for graduate-level credentialing or tested professional experience appropriate to applied engineering technology instruction.
- The faculty structure and qualifications support ABET Engineering Technology Accreditation Commission expectations for faculty sufficiency, technical coverage, and program oversight within an applied, laboratory-intensive engineering technology program..

Professional and Applied Experience

- Full-time faculty averages more than 10 years of applied engineering and industry experience.
- Expertise spans automation, robotics, PLCs, AI/ML integration, IIoT, and manufacturing systems.
- Faculty maintain professional engagement (ISA, IEEE, ASME, SME) and industry collaboration.

Teaching and Continuous Improvement

- Full-time faculty demonstrate strong project-based teaching and advanced laboratory instruction.
- Full-time faculty lead assessment, curriculum oversight, and capstone coordination.

- Special Instructors support consistent delivery across multiple lab-intensive ET Core courses.

Compliance and Governance

- The staffing model of five full-time Special Instructors/Professors of Practice and seven adjunct instructors provides sufficient instructional capacity, technical expertise, and workload balance to support curriculum delivery, laboratory instruction, assessment activities, and continuous improvement in accordance with ABET ETAC expectations.
- Faculty CVs are maintained in the SECS Faculty Qualification Repository and updated annually.

B. Degree Requirements ***HLC requirement***

Degree Awarded: Bachelor of Science in Engineering Technology (BSET), School of Engineering and Computer Science, Oakland University.

Minimum Credits Required for Graduation: Minimum of 90 credits.

Category	*Course*	*Cr*	*Existing OU Course?*	*Notes*
General Education (33 credits)	*WRT 1060 Composition II*	*4*	*Y*	*Writing Foundations*
	Arts Elective	*4*	*Y*	*Explorations: Arts*
	Global Perspectives + WIG	*3*	*Y*	*Explorations + WIG overlay*
	Language and Culture Elective	*4*	*Y*	*Explorations*
	Literature Elective	*4*	*Y*	*Explorations: Literature*
	Social Science + DIV	*4*	*Y*	*Explorations + Diversity overlay*
	PHY 1010 + PHY 1100 Physics I with Lab	*5*	*Y*	*Natural Science and Technology*
	PHY 1020 + PHY 1110 Physics II with Lab	*5*	*Y*	*Knowledge Applications*
Subtotal – General Education		*33*		*All OU General Education areas satisfied; Western Civilization outcomes embedded in ET 2000 (pending General Education approval).*
Mathematics and Applied Science (12 credits)	*MTH 1222 or MTH 1554 Calculus I*	*4*	*Y*	*Formal reasoning and applied calculus*
	EGR 1000 Engineering Mathematics	*4*	*Y*	*Applied differential equations and modeling*
	EGR 2600 Introduction to Industrial and Systems Engineering	*4*	*Y*	*Probability, statistics, and systems analysis*
Subtotal – Mathematics and Applied Science		*12*		*College-level mathematics and applied science foundation appropriate to engineering technology*
Engineering Technology Core (30 credits)	*ET 1200 Applied Programming for Engineering Technology*	*3*	*N*	*Programming and modern tool usage for automation*

Category	Course	Cr	Existing OU Course?	Notes
	ET 2000 Introduction to Engineering Technology	3	N	Professional orientation, ethics, safety, Western Civilization outcomes (pending General Education approval).
	ET 2010 Applied Circuits and Electronics	3	N	Laboratory-based electrical circuits
	ET 2020 Engineering Materials and Manufacturing Processes	3	N	Materials, processes, and sustainability
	ET 2030 Automation and PLC Systems	3	N	Industrial automation and control
	ET 2040 Applied Mechatronics	3	N	Electromechanical system integration
	ET 2050 Instrumentation and Data Acquisition	3	N	Measurement, calibration, and validation
	ET 3010 Robotics and Automation	3	N	Team-based robotics and automation
	ET 3020 Applied Control Systems	3	N	Feedback and industrial control
	ET 4020 Applied AI for Engineering Technology	3	N	Data-driven optimization and analytics
Subtotal – Engineering Technology Core		30		Discipline-specific engineering technology breadth
Capstone / Professional Practice (6 credits)	ET 4998 Capstone Design I	3	N	Project definition, planning, and professional practice
	ET 4999 Capstone Design II – WIM	3	N	System integration, documentation, and communication
Subtotal – Capstone		6		Culminating applied design experience
Specialization Pathways (select one – 12 credits)	Electrical and Computer ET, Mechatronics and Electro-Mechanical Systems ET, Industrial and Systems ET, or Automation and AI ET (three lecture-lab courses)	12	N	Upper-division applied technical depth

Category	*Course*	*Cr*	*Existing OU Course?*	*Notes*
Subtotal – Specialization Pathway		*12*		*Focused discipline-specific specialization*
Total Program Credits		*93 credits*		*Meets program objectives without unnecessary credit inflation*

Credit Distribution (93 credits)

- ***General Education:*** *33 credits*
  - *Physics I–II satisfy Natural Science and Knowledge Applications areas.*
  - *ET 2000 has been submitted for General Education approval to satisfy the Western Civilization (WC) requirement. If the WC designation is not approved, the BSET curriculum will include an alternative approved WC course, increasing total program credits by approximately 3–4 credits..*
- ***Mathematics and Applied Science Foundation:*** *12 credits*
  - *Calculus I, applied differential equations, and applied statistics.*
- ***Engineering Technology Core:*** *30 credits*
  - *Circuits, mechatronics, automation, instrumentation, control systems, and applied artificial intelligence.*
- ***Specialization Pathway:*** *12 credits*
  - *Three advanced 4-credit lecture-plus-laboratory courses.*
  - *Students select one pathway: Electrical and Computer ET, Mechatronics and Electro-Mechanical Systems ET, Industrial and Systems ET, or Automation and AI ET.*
- ***Capstone and Professional Practice:*** *6 credits*
  - *ET 4998 and ET 4999 (Capstone Design I–II, including Writing Intensive in the Major).*

Total Program Credits: *93 credits (90-credit minimum)*

Curriculum Alignment with ETAC Expectations

- ***Mathematics and Science Foundation***
  The curriculum includes college-level calculus, applied differential equations, probability and statistics, and laboratory-based physics, providing the quantitative and scientific foundation appropriate for a baccalaureate engineering technology program.
- ***Discipline-Specific Engineering Technology Content***
  The Engineering Technology Core, specialization pathway, and capstone sequence together provide applied technical breadth and depth in automation, controls, instrumentation, robotics, and artificial intelligence. Discipline-specific content comprises approximately 52 percent of the curriculum, within the one-third to two-thirds range expected for engineering technology programs.
- ***Design, Professional Practice, and Integration***
  The two-semester capstone sequence integrates applied design, teamwork, professional communication, standards awareness, safety considerations, and ethical responsibility through industry-informed projects and documented deliverables.

Curriculum coverage and integration are documented through course syllabi, laboratory assessments, design reviews, and capstone artifacts.

Specialization Framework (12 credits each)

1. *Electrical and Computer Engineering Technology*
2. *Mechatronics and Electro-Mechanical Systems Engineering Technology*
3. *Industrial and Systems Engineering Technology*

4. *Automation and Artificial Intelligence Engineering Technology*

Each specialization provides focused upper-division applied expertise aligned with program objectives and workforce needs.

Writing-Intensive and Ethics Integration

- *ET 4999 satisfies the Writing Intensive in the Major (WIM) requirement.*
- *ET 4998 integrates project management, standards awareness, and risk analysis.*
- *ET 2000 establishes ethical, societal, and historical foundations for engineering technology practice.*

Summary

The BSET curriculum:

- *Satisfies Oakland University General Education requirements*
- *Provides applied technical depth in automation, robotics, and artificial intelligence*
- *Maintains a transfer-efficient structure without unnecessary credit expansion*

This structure supports timely, cost-effective degree completion for both first-year and transfer students.

Delivery and Residency

The program is delivered at the Oakland University main campus and the Macomb University Center.
Students must complete a minimum of 30 credits in residence at Oakland University.
Program outcomes are evaluated annually through embedded course assessments, capstone evaluations, and Industrial Advisory Board review in accordance with the School of Engineering and Computer Science continuous improvement processes.

C. Typical Student Plan of Study – Full-Time Schedule

Degree Awarded: Bachelor of Science in Engineering Technology (BSET)

Minimum Credits for Graduation: Minimum of 90 credits

Program Length: Six semesters (three academic years, full-time)

Delivery Mode: Primarily face-to-face at Oakland University Main Campus and MUC, with hybrid options in select advanced courses.

Residency Requirement: Minimum of 30 OU credits in residence, typically completed in final three semesters.

Proposed BSET 3-Year Semester-by-Semester Plan of Study.

Year / Term	*Course*	*Cr*	*Category*	*OU GE / Overlay*	*Prerequisite / Corequisite*	*Notes (ETAC-Aligned, Descriptive)*
Y1 Fall	*WRT 1060 - Composition II*	*4*	*GE*	*Writing Foundations*	*WRT 1050 or placement*	*Foundational written communication*
	MTH 1222 or MTH 1554 - Calculus I	*4*	*Math*	*Formal Reasoning*	*Placement*	*College-level calculus supporting technical coursework*
	ET 1200 - Applied Programming	*3*	*ET Core*	*-*	*None*	*Programming foundations and modern engineering technology tools*
	Arts Elective	*4*	*GE*	*Arts*	*None*	*Broad education and creative perspectives*
	Term Total	*15*				
Y1 Winter	*EGR 1000 - Engineering Mathematics*	*4*	*Math*	*-*	*MTH 0662 with C or better*	*Applied differential equations and modeling*
	PHY 1010 + PHY 1100 - Physics I with Lab	*5*	*GE*	*NS&T*	*MTH 0662 or placement*	*Lab-based physical science foundation*
	ET 2000 - Introduction to Engineering Technology	*3*	*ET Core*	*-*	*None*	*Professional context, ethics, safety, and Western Civilization outcomes(pending General Education approval)*
	Social Science + DIV	*4*	*GE*	*SS + DIV*	*None*	*Societal context and diversity perspectives*
	Term Total	*16*				
Y2 Fall	*EGR 2600 - Introduction to Industrial and*	*4*	*Math*	*-*	*EGR 1000*	*Probability, statistics, and systems analysis*

Year / Term	Course	Cr	Category	OU GE / Overlay	Prerequisite / Corequisite	Notes (ETAC-Aligned, Descriptive)
	Systems Engineering					
	PHY 1020 + PHY 1110 - Physics II with Lab	5	GE	Knowledge Applications	PHY 1010	Applied electricity and magnetism with laboratory
	ET 2010 - Applied Circuits and Electronics	3	ET Core	-	PHY 1010; MTH 1222/1554; Coreq: PHY 1020	Electrical measurement and circuit analysis
	Literature Elective	4	GE	Literature	None	Analytical reading and written expression
	Term Total	16				
Y2 Winter	ET 2020 - Engineering Materials and Manufacturing Processes	3	ET Core	-	None	Materials behavior and manufacturing systems
	ET 2030 - Automation and PLC Systems	3	ET Core	-	ET 2010	PLC programming and industrial automation
	ET 2040 - Applied Mechatronics	3	ET Core	-	ET 2010	Electromechanical system integration
	ET 2050 - Instrumentation and Data Acquisition	3	ET Core	-	ET 2010	Sensors, measurement, and data analysis
	Global Perspectives + WIG	3	GE	GP + WIG	None	Global context and writing-intensive general education
	Term Total	15				
Y3 Fall	Major Standing Achieved Before This Term	-	-	-	Completion of lower-division ET Core	Required for 3000- and 4000-level ET courses
	ET 3010 - Robotics and Automation	3	ET Core	-	ET 2030 and ET 2040	Robotic systems and automation integration
	ET 3020 - Applied Control Systems	3	ET Core	-	ET 2030 and ET 2040	Feedback control and system tuning

Year / Term	Course	Cr	Category	OU GE / Overlay	Prerequisite / Corequisite	Notes (ETAC-Aligned, Descriptive)
	ET Pathway Course #1 + Lab	4	Specialization	-	Major standing and pathway prerequisites	First upper-division specialization course
	ET 4020 - Applied AI for Engineering Technology	3	ET Core	-	ET 2030 and ET 2050	Data-driven automation and AI applications
	ET 4998 - Capstone Design I	3	Capstone	-	Major Standing and Coreq: ET 3010/ET 3020/ET 4020	Project definition, planning, and design
	Term Total	16				
Y3 Winter	ET Pathway Course #2 + Lab	4	Specialization	-	Major standing and pathway sequence	Advanced specialization depth
	ET Pathway Course #3 + Lab	4	Specialization	-	Major standing and pathway sequence	Advanced specialization depth
	ET 4999 - Capstone Design II - WIM	3	Capstone	WIM	ET 4998	Design implementation, validation, and communication
	Language and Culture Elective	4	GE	L&C	None	Cultural and global understanding
	Term Total	15				

Specialization Pathways: Prerequisite Completion and Eligibility Matrix

Pathway	Course	Cr	Prerequisite	When Prereq Is Completed	Eligible Semester
Automation & AI ET	ET 4410/4411 – Advanced PLC Applications	4	ET 2030	Y2 Winter	Y3 Fall (Path #1)
	ET 4420/4421 – Machine Vision & Robotics	4	ET 3010 + ET 2050	ET 2050 → Y2 Winter; ET 3010 → Y3 Fall	Y3 Winter
	ET 4430/4431 – AI-Driven Automation & IIoT	4	ET 2030 + ET 2050	Both by Y2 Winter	Y3 Winter
Mechatronics & Electro-Mechanical Systems ET	ET 4210/4211 – Advanced Mechatronics	4	ET 2030 + ET 2040	Y2 Winter	Y3 Fall/Winter

Pathway	Course	Cr	Prerequisite	When Prereq Is Completed	Eligible Semester
	ET 4220/4221 – Fluid Power & Hydraulics	4	ET 2030 + ET 2040	Y2 Winter	Y3 Fall/Winter
	ET 4230/4231 – Mechanical Systems Integration	4	ET 4210	ET 4210 taken Y3 Fall	Y3 Winter
Electrical & Computer ET	ET 4110/4111 – Applied Circuits & Power Electronics	4	ET 2010	Y2 Fall	Y3 Fall
	ET 4120/4121 – Sensors & Signal Processing	4	ET 2010	Y2 Fall	Y3 Fall/Winter
	ET 4130/4131 – Networks & Cybersecurity	4	ET 1200	Y1 Fall	Y3 Fall/Winter
Industrial & Systems ET	ET 4310/4311 – Lean Manufacturing Systems	4	ET 2020	Y2 Winter	Y3 Fall
	ET 4320/4321 – Adv. Manufacturing & Quality Analytics	4	ET 4310	Y3 Fall	Y3 Winter
	ET 4330/4331 – Industrial Systems & Logistics Integration	4	ET 4310	Y3 Fall	Y3 Winter

Specialization Pathways (Students Choose One – 12 Credits)

Specialization	Courses (each 4 cr: 3 lec + 1 lab)	Applied Focus
Electrical & Computer Engineering Technology (EET)	ET 4110/4111 Applied Circuits and Power Electronics; ET 4120/4121 Sensors and Signal Processing; ET 4130/4131 Networks and Cybersecurity	Applied circuits, sensors, signal processing, embedded systems, and secure industrial communication supporting modern electrical and computing applications.
Mechatronics and Electro-Mechanical Systems Engineering Technology (METX)	ET 4210/4211 Advanced Mechatronics; ET 4220/4221 Fluid Power and Hydraulics; ET 4230/4231 Mechanical Systems Integration and Validation	Integration of mechanical, electrical, fluid power, and control systems with emphasis on system validation, safety, and industrial automation.
Industrial and Systems Engineering Technology (ISET)	ET 4310/4311 Lean Manufacturing Systems; ET 4320/4321 Advanced Manufacturing and Quality Analytics; ET 4330/4331	Process optimization, quality analytics, logistics integration, and continuous improvement in manufacturing and service systems.

Specialization	*Courses (each 4 cr: 3 lec + 1 lab)*	*Applied Focus*
	Industrial Systems and Logistics Integration	
Automation and Artificial Intelligence Engineering Technology (AIET)	*ET 4410/4411 Advanced PLC Applications; ET 4420/4421 Machine Vision and Robotics; ET 4430/4431 AI-Driven Automation and IIoT*	*Advanced automation, robotics, machine vision, industrial data analytics, and AI-enabled digital manufacturing systems.*

Total Credits: 90 credits minimum
Program Duration: 6 semesters (≈ 15–16 credits per term)
(The OU-start example totals 93 credits, consistent with OU 4-credit GE structure.)

General Education: 33 credits
The curriculum is fully aligned with the Oakland University General Education framework, including Writing Foundations, Formal Reasoning, Natural Science and Technology, Arts, Literature, Language and Culture, Social Science with Diversity overlay, Global Perspectives with Writing Intensive in General Education overlay, Knowledge Applications, and Writing Intensive in the Major (fulfilled through ET 4999). Physics I–II satisfy both the Natural Science and Technology and Knowledge Applications areas. Writing Foundations and Writing Intensive requirements are satisfied through WRT 1060 and ET 4999. Western Civilization learning outcomes are embedded in ET 2000 (pending General Education approval) and reinforced through the capstone sequence.

Mathematics and Applied Science Foundation: 12 credits
The mathematics and applied science foundation includes college-level calculus, applied differential equations, probability and statistics, and laboratory-based physical science appropriate to a baccalaureate engineering technology program. Coursework includes:

- MTH 1222 or MTH 1554 – Calculus I
- EGR 1000 – Engineering Mathematics
- EGR 2600 – Introduction to Industrial and Systems Engineering

Physics I–II are counted within General Education but also support the applied science foundation of the curriculum.

Engineering Technology Core: 30 credits
The Engineering Technology Core provides applied, laboratory-intensive breadth across circuits, mechatronics, robotics, automation, instrumentation, control systems, and applied artificial intelligence. Core courses include:
ET 1200, ET 2000, ET 2010, ET 2020, ET 2030, ET 2040, ET 2050, ET 3010, ET 3020, and ET 4020. This sequence emphasizes experimentation, system integration, applied problem solving, and the use of modern engineering technology tools.

Capstone and Professional Practice: 6 credits

- ET 4998 – Capstone Design I
- ET 4999 – Capstone Design II (Writing Intensive in the Major)

The two-semester capstone sequence provides a culminating applied design experience integrating teamwork, professional communication, documentation, standards awareness, safety considerations, and ethical responsibility through industry-informed projects.

Specialization Pathways: 12 credits (students select one)
Students complete one specialization pathway consisting of three advanced lecture-plus laboratory courses:

- Electrical and Computer Engineering Technology
- Mechatronics and Electro-Mechanical Systems Engineering Technology
- Industrial and Systems Engineering Technology
- Automation and Artificial Intelligence Engineering Technology

Pathway courses require Major Standing only and do not require ET 4020 or additional prerequisites. The specialization pathways provide focused upper division applied technical depth aligned with program objectives and workforce needs.

Delivery Mode
Primarily face-to-face at MUC and OU Main Campus with ≤ 25% hybrid delivery in select courses to support access and flexibility. Sequencing ensures no impact on existing BSE programs.

Transfer Pathways
Transfer students may apply up to 60 credits from an A.A.S. toward the BSET degree.
The remaining 30 credits must be completed at OU through ET Core, Specialization, and Capstone courses, consistent with OU's 90-credit minimum residency requirement.
This structure supports 2+1 and 3+0 community college partnership models across Michigan.

D. Detailed New Course Descriptions or Syllabi ***HLC requirement***

This appendix includes all BSET new courses. Each includes catalog descriptions, learning outcomes, objectives, and prerequisites.

Engineering Technology Core Courses:

1. ET 1200 – Applied Programming for Engineering Technology
2. ET 2000 – Introduction to Engineering Technology
3. ET 2010 – Applied Electrical Circuits and Electronics
4. ET 2020 – Engineering Materials and Manufacturing Processes
5. ET 2030 – Automation and PLC Systems
6. ET 2040 – Applied Mechatronics
7. ET 2050 – Instrumentation and Data Acquisition
8. ET 3010 – Robotics and Automation
9. ET 3020 – Applied Control Systems
10. ET 4020 – Applied AI for Engineering Technology

The ET Core sequence provides the applied technical foundation for the BSET degree by integrating mathematics, natural science, engineering principles, and modern engineering technology tools in alignment with ABET Engineering Technology Accreditation Commission curriculum expectations.

Engineering Technology Core and Specialization Courses - Applied Focus and Outcome Areas

Course	***Title / Credits***	***Prerequisite / Corequisite***	***Primary Focus & Student Outcome Areas***
ET 1200	*Applied Programming (3)*	*None*	*Foundational programming for engineering technology; data acquisition scripting; microcontroller interfacing; automation logic. Outcome areas: applied problem solving; use of modern tools.*
ET 2000	*Introduction to Engineering Technology (3)*	*None*	*Engineering technology profession, ethics, safety, measurement, documentation, teamwork, and societal context. Outcome areas: professional responsibility; teamwork; communication.*
ET 2010	*Applied Electrical Circuits & Electronics (3)*	*PHY I; Calculus I*	*DC/AC circuits, semiconductors, instrumentation, electrical safety, troubleshooting. Outcome areas: application of mathematics and science; experimentation and analysis.*
ET 2020	*Engineering Materials & Manufacturing Processes (3)*	*None*	*Materials behavior, manufacturing processes, standards-informed practice. Outcome areas: applied problem solving; professional practice.*
ET 2030	*Automation & PLC Systems (3)*	*ET 2010*	*PLC logic, sensors, actuators, automation networks, commissioning. Outcome areas: applied design; use of modern tools.*

Course	Title / Credits	Prerequisite / Corequisite	Primary Focus & Student Outcome Areas
ET 2040	*Applied Mechatronics (3)*	*ET 2010*	*Electromechanical integration, motion systems, troubleshooting, PLC interaction. Outcome areas: applied design; experimentation.*
ET 2050	*Instrumentation & Data Acquisition (3)*	*ET 2010*	*Sensors, signal conditioning, SPC, calibration, experimental methods. Outcome areas: experimentation; data analysis.*
ET 3010	*Robotics & Automation (3)*	*ET 2030 & ET 2040*	*Robot programming, safety, cell integration, automation systems. Outcome areas: applied design; teamwork; professional practice.*
ET 3020	*Applied Control Systems (3)*	*ET 2030 & ET 2040*	*Feedback control, PID tuning, industrial controllers. Outcome areas: applied problem solving; experimentation.*
ET 4020	*Applied AI for Engineering Technology (3)*	*ET 2030 & ET 2050*	*Industrial AI, data pipelines, predictive analytics, intelligent automation. Outcome areas: use of modern tools; continuous improvement.*

Specialization Pathways - Upper-Division Applied Depth (Representative Examples)

Pathway	*Representative Courses*	*Applied Outcome Emphasis*
Electrical & Computer ET	*ET 4110/4111; ET 4120/4121; ET 4130/4131*	*Circuits, sensors, networks, embedded systems; applied design; experimentation; standards-informed practice*
Mechatronics & Electro-Mechanical ET	*ET 4210/4211; ET 4220/4221; ET 4230/4231*	*Integrated electromechanical systems; validation; safety; system performance*
Industrial & Systems ET	*ET 4310/4311; ET 4320/4321; ET 4330/4331*	*Lean systems, quality analytics, logistics, optimization; data-driven decision making*
Automation & AI ET	*ET 4410/4411; ET 4420/4421; ET 4430/4431*	*Advanced automation, robotics, AI-enabled industrial systems; cybersecurity awareness*

BSET Curriculum: Catalog Prerequisites and ETAC Outcome Alignment

Total ET Core Credits: 30

ET 1200 — Applied Programming for Engineering Technology (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: None

Description:
Introduces computer programming and computational problem-solving for automation, instrumentation, and control applications. Emphasizes Python- and C-based scripting for sensors, data acquisition, and hardware interfacing. Includes hands-on projects using microcontrollers and industrial I/O systems relevant to mechatronics, electrical, and industrial engineering technology applications.

Learning Outcomes:

- Develop basic programs to collect, process, and visualize engineering data.
- Interface software with microcontrollers, sensors, and actuators.
- Apply structured programming and debugging techniques to applied automation tasks.
- Integrate data acquisition and control loops using industry-standard tools.

Learning Objectives:
Students develop foundational programming skills for applied engineering technology, emphasizing problem solving, hardware interfacing, and system automation consistent with ABET ETAC curriculum expectations for applied technical practice.

Note:
Students who have successfully completed CSI 1320 (Introduction to Python Programming and Unix) or EGR 1400 (Engineering Problem Solving with C# and MATLAB) may substitute either course for ET 1200.

ET 2000 — Introduction to Engineering Technology (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: None

Note on ET 2000:
This course is numbered at the 2000 level consistent with national engineering technology practice, where introductory ET foundation courses may be designated at the sophomore level while remaining open to students without prerequisites.

Description:
Introduces the scope, history, and professional context of engineering technology within industrial and technological development. Emphasizes applied problem solving, teamwork, measurement fundamentals, laboratory safety, and professional documentation. Students examine how social, economic, ethical, and regulatory factors influence engineering technology systems and standards (e.g., ASME, IEEE, ISO, NFPA). Laboratory activities integrate mechanical, electrical, and computing tools with communication and documentation practices.

Learning Outcomes:

- Describe major fields of engineering technology and their societal and industrial roles.
- Apply basic measurement, calibration, and documentation procedures using standard laboratory instruments.
- Demonstrate safe laboratory practices consistent with applicable safety standards.
- Interpret engineering drawings, specifications, and technical data sheets.
- Work effectively in teams to plan and execute applied experiments or prototypes.
- Communicate technical information through structured reports and presentations.
- Analyze ethical and societal considerations in engineering technology practice.

Learning Objectives:
Students develop foundational understanding of applied engineering principles, professional conduct, teamwork, and societal context, preparing them for subsequent Engineering Technology Core coursework.

ET 2010 — Applied Electrical Circuits and Electronics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: PHY 1010 and MTH 1222 or MTH 1554
Corequisite: PHY 1020

Description:
Covers DC and AC circuits, semiconductor devices, and electrical safety practices. Emphasizes measurement, troubleshooting, and application of electrical and electronic systems in industrial and automation contexts. Students use simulation tools and laboratory instrumentation to analyze resistive, reactive, and digital circuits.

Learning Outcomes:

- Apply circuit laws to analyze DC and AC systems.
- Use test instruments safely to measure and troubleshoot circuits.
- Interpret datasheets and apply relevant electrical standards.
- Document laboratory procedures and results in professional format.

Learning Objectives:
Students gain applied skills in circuit analysis, measurement, and component-level evaluation, supporting later automation, robotics, and control applications.

ET 2020 — Engineering Materials and Manufacturing Processes (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: None

Description:
Introduces properties, behaviors, and processing methods of engineering materials, including metals, polymers, ceramics, and composites, within applied manufacturing systems. Emphasizes material selection, process control, and quality considerations. Laboratory work involves testing, data acquisition, and analysis of material performance.

Learning Outcomes:

- Identify and classify engineering materials based on structure and properties.
- Apply principles of common manufacturing processes.
- Use sensors and data-collection tools to evaluate material behavior.
- Interpret material and process specifications using recognized standards.

Learning Objectives:
Students develop applied understanding of material behavior, instrumentation data, and process parameters and their impact on performance, cost, and sustainability.

ET 2030 — Automation and PLC Systems (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2010

Description:
Introduces programmable logic controllers (PLCs), automation networks, and industrial sensors. Students develop ladder logic, configure I/O and HMIs, and integrate control hardware. Includes wiring diagrams, system commissioning, and industrial safety practices.

Learning Outcomes:

- Program and test PLC-based control logic.
- Configure sensors, actuators, and I/O modules.
- Interpret automation schematics and wiring diagrams.
- Apply safety practices in automation system setup.

Learning Objectives:
Prepares students to implement and troubleshoot PLC-based automation systems used in industrial environments.

ET 2040 — Applied Mechatronics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2010

Description:
Introduces electromechanical systems integrating sensors, actuators, and programmable control. Students design and test mechatronic subsystems used in automation and robotics. Laboratory work emphasizes wiring, PLC interfacing, motion fundamentals, calibration, and troubleshooting.

Learning Outcomes:

- Apply electrical and control principles to mechatronic systems.
- Interface sensors and actuators with programmable controllers.
- Troubleshoot integrated electromechanical systems.
- Document system performance using industrial standards.

Learning Objectives:
Students integrate mechanical, electrical, and control components into functional systems through team-based laboratory projects emphasizing communication and reliability analysis.

ET 2050 — Instrumentation and Data Acquisition (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2010

Description:
Focuses on sensors, transducers, and data acquisition systems used in engineering measurement. Students configure DAQ hardware, design signal-conditioning circuits, and analyze data using statistical process control and programming tools.

Learning Outcomes:

- Select and calibrate sensors for process measurement.
- Build and validate DAQ systems for analog and digital signals.
- Apply statistical techniques to evaluate system variability.
- Present measurement results in professional reports.

Learning Objectives:
Develops measurement, data analysis, and system validation skills required in automated and data-driven environments.

ET 3010 — Robotics and Automation (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030 and ET 2040

Description:
Covers industrial robotics, kinematics, path programming, and automation integration. Students program robotic systems for material handling and assembly applications. Includes calibration, safety, and performance evaluation.

Learning Outcomes:

- Program and operate industrial robotic systems.
- Apply kinematic principles to robot motion.
- Integrate robotics with PLC and vision systems.
- Evaluate robotic system performance and safety.

Learning Objectives:
Students acquire applied skills for deploying and maintaining robotic automation systems integrated with industrial controls.

ET 3020 — Applied Control Systems (3)

Contact Hours: 2 lecture, 3 laboratory (integrated)
Prerequisite: ET 2030 and ET 2040

Description:
Introduces feedback and feedforward control systems used in automation. Covers modeling, simulation,

and controller tuning. Students design and test PID control loops using industrial controllers and virtual laboratories.

Learning Outcomes:

- Model dynamic systems using industrial software tools.
- Design and tune PID controllers.
- Implement feedback control using sensors and actuators.
- Document and evaluate control-system performance.

Learning Objectives:
Develops competencies in applied control theory and practice supporting advanced automation and robotics applications.

ET 4020 — Applied AI for Engineering Technology (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030 and ET 2050

Description:
Applies artificial intelligence, machine learning, and data-driven methods to industrial automation and robotics. Students develop data pipelines, predictive models, and analytics dashboards for intelligent engineering systems.

Learning Outcomes:

- Apply machine-learning models to engineering datasets.
- Develop data pipelines for automation systems.
- Visualize results using analytics tools.
- Evaluate ethical and safety considerations related to AI applications.

Learning Objectives:
Students gain applied skills in AI-enabled decision making and industrial analytics applicable across engineering technology domains.

Capstone Design Sequence

ET 4998 — Capstone Design I (3)
Contact Hours: 2 lecture, 3 project studio
Corequisite: ET 3010 or ET 3020 or ET 4020

Description:
First course in a two-semester capstone sequence emphasizing project definition, planning, feasibility analysis, and project management. Students work in multidisciplinary teams on industry-relevant projects, addressing ethics, sustainability, safety, and risk assessment.

Learning Outcomes:

- Define and plan applied engineering technology projects.
- Apply project-management tools for scope, schedule, and cost control.
- Communicate design concepts through professional documentation.
- Demonstrate ethical awareness and teamwork.

ET 4999 — Capstone Design II — Writing Intensive in the Major (3)
Contact Hours: 1 lecture, 6 project studio
Prerequisite: ET 4998

Description:
Culminating design experience in which students implement, test, and validate capstone projects. Emphasizes technical documentation, oral presentation, standards application, safety analysis, and societal impact considerations.

Learning Outcomes:

- Execute and validate integrated engineering technology solutions.
- Produce professional documentation and presentations.
- Apply systems thinking and continuous-improvement methods.
- Reflect on ethical, societal, and environmental impacts.

Learning Objectives:
Students demonstrate readiness for professional practice by completing a full design–build–test cycle and communicating results to technical and nontechnical audiences.

Specialization Pathways (12 Credits Each)

(Electrical & Computer ET; Mechatronics & Electro-Mechanical ET; Industrial & Systems ET; Automation & AI ET)

Specialization courses extend the ET Core through upper division applied coursework emphasizing system integration, validation, analytics, automation intelligence, and professional practice. All pathways culminate in the two-semester capstone sequence.

Students complete one specialization pathway consisting of three upper-division lecture courses (3 credits each) and three paired laboratories (1 credit each). All pathways build on the Engineering Technology Core and culminate in the two-semester capstone design sequence (ET 4998 - ET 4999).

Electrical & Computer Engineering Technology Pathway

ET 4110 - Applied Circuits and Power Electronics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2010

Description:
Advanced applications of circuit analysis and power electronics used in automation, energy systems, and electric drives. Topics include rectifiers, inverters, DC-DC converters, switching devices, and thermal considerations.

Learning Outcomes:

- Analyze and design basic power-conversion circuits.
- Select and apply power electronic components.
- Evaluate efficiency and thermal performance.
- Apply electrical safety practices in system design.

Learning Objectives:
Students develop applied competencies in power electronics analysis and design for industrial systems.

ET 4111 - Applied Circuits and Power Electronics Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4110

Description:
Hands-on implementation and testing of power electronic circuits. Emphasizes measurement, validation, and safe laboratory practice.

Learning Outcomes:

- Construct and test power-conversion circuits.
- Perform electrical measurements and diagnostics.
- Validate system performance against specifications.

Learning Objectives:
Students gain practical experience validating power electronic systems using industrial instrumentation.

ET 4120 - Sensors and Signal Processing (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2010

Description:
Principles of sensor technology, signal conditioning, filtering, and introductory signal-processing techniques for engineering applications.

Learning Outcomes:

- Select sensors for measurement applications.
- Apply filtering and signal-conditioning techniques.
- Analyze signals in time and frequency domains.

Learning Objectives:
Students develop applied understanding of instrumentation and signal analysis.

ET 4121 - Sensors and Signal Processing Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4120

Description:
Laboratory experience in sensor calibration, data acquisition, filtering, and validation using real-world signals.

Learning Outcomes:

- Calibrate sensors and validate measurement accuracy.
- Acquire and analyze sensor data.
- Document experimental results professionally.

Learning Objectives:
Students gain hands-on experience validating sensor performance and data quality.

ET 4130 - Networks and Cybersecurity (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 1200

Description:
Industrial networking technologies and cybersecurity principles for automation and connected systems.

Learning Outcomes:

- Configure industrial communication networks.
- Apply basic cybersecurity practices.
- Document network architectures and risks.

Learning Objectives:
Students learn to design reliable and secure industrial communication systems.

ET 4131 - Networks and Cybersecurity Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4130

Description:
Hands-on configuration, diagnostics, and security testing of industrial networks.

Learning Outcomes:

- Configure network hardware and protocols.
- Evaluate system vulnerabilities.
- Apply secure configuration practices.

Learning Objectives:
Students gain practical experience securing and validating networked automation systems.

Mechatronics & Electro-Mechanical Systems Engineering Technology Pathway

ET 4210 - Advanced Mechatronics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030 and ET 2040

Description:
Advanced integration of mechanical, electrical, and control systems for automation.

Learning Outcomes:

- Integrate sensors, actuators, and controllers.
- Implement closed-loop control strategies.
- Diagnose system-level faults.

Learning Objectives:
Students develop advanced system-integration skills for automated equipment.

ET 4211 - Advanced Mechatronics Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4210

Description:
Laboratory implementation of multi-axis mechatronic systems with diagnostics and tuning.

Learning Outcomes:

- Assemble and test integrated mechatronic systems.
- Validate system performance.
- Document results clearly.

Learning Objectives:
Students gain hands-on experience validating complex electromechanical systems.

ET 4220 - Fluid Power and Hydraulics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030 and ET 2040

Description:
Hydraulic and pneumatic power systems used in industrial automation.

Learning Outcomes:

- Analyze and design fluid-power circuits.
- Apply fluid-power principles to motion control.
- Evaluate system performance.

Learning Objectives:
Students gain applied knowledge of fluid-power systems integrated with automation.

ET 4221 - Fluid Power and Hydraulics Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4220

Description:
Hands-on construction and testing of hydraulic and pneumatic systems.

Learning Outcomes:

- Build and test fluid-power circuits.
- Perform diagnostics and maintenance checks.
- Apply safety procedures.

Learning Objectives:
Students develop practical skills in validating fluid-power systems.

ET 4230 - Mechanical Systems Integration and Validation (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 4210

Description:
System-level integration and validation of mechanical and mechatronic assemblies.

Learning Outcomes:

- Perform mechanical system integration and alignment.
- Analyze vibration and performance data.
- Prepare validation documentation.

Learning Objectives:
Students develop system-level validation and reliability skills.

ET 4231 - Mechanical Systems Integration and Validation Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4230

Description:
Laboratory validation of integrated mechanical and automation systems.

Learning Outcomes:

- Conduct system verification tests.
- Use data-acquisition tools for validation.

- Document lifecycle performance.

Learning Objectives:
Students gain applied experience verifying complete mechanical systems.

Industrial & Systems Engineering Technology Pathway

ET 4310 - Lean Manufacturing Systems (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2020

Description:
Lean manufacturing principles, process flow analysis, and continuous improvement methods.

Learning Outcomes:

- Apply lean tools to process improvement.
- Analyze value streams and waste.
- Communicate improvement results.

Learning Objectives:
Students develop systems-thinking and continuous-improvement skills.

ET 4311 - Lean Manufacturing Systems Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4310

Description:
Hands-on application of lean tools using simulations and case studies.

Learning Outcomes:

- Conduct time studies and simulations.
- Implement improvement strategies.
- Document outcomes.

Learning Objectives:
Students gain applied experience implementing lean improvements.

ET 4320 - Advanced Manufacturing and Quality Analytics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 4310

Description:
Statistical quality control and advanced manufacturing analytics.

Learning Outcomes:

- Apply SPC and DOE techniques.
- Evaluate process capability.
- Visualize quality data.

Learning Objectives:
Students build quantitative skills for manufacturing quality systems.

ET 4321 - Advanced Manufacturing and Quality Analytics Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4320

Description:
Laboratory execution of SPC, DOE, and analytics projects.

Learning Outcomes:

- Conduct experiments and analyze results.
- Develop quality dashboards.
- Report findings professionally.

Learning Objectives:
Students gain practical experience with data-driven quality improvement.

ET 4330 - Industrial Systems and Logistics Integration (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 4310

Description:
Production planning, logistics, and systems integration.

Learning Outcomes:

- Model and analyze industrial systems.
- Apply scheduling and logistics methods.
- Evaluate system trade-offs.

Learning Objectives:
Students develop integrated systems-analysis skills.

ET 4331 - Industrial Systems and Logistics Integration Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4330

Description:
Laboratory modeling and simulation of logistics and production systems.

Learning Outcomes:

- Simulate integrated systems.
- Optimize throughput and flow.
- Document system performance.

Learning Objectives:
Students gain hands-on experience validating industrial system models.

Automation & Artificial Intelligence Engineering Technology Pathway

ET 4410 - Advanced PLC Applications (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030

Description:
Advanced PLC programming for distributed and motion-control systems.

Learning Outcomes:

- Design multi-controller automation systems.
- Implement motion-control and safety logic.
- Document complex control programs.

Learning Objectives:
Students master advanced PLC integration techniques.

ET 4411 - Advanced PLC Applications Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4410

Description:
Hands-on development and troubleshooting of advanced PLC systems.

Learning Outcomes:

- Configure networked PLC systems.
- Diagnose automation faults.
- Validate system operation.

Learning Objectives:
Students gain applied experience commissioning PLC-based systems.

ET 4420 - Machine Vision and Robotics (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 3010 and ET 2050

Description:
Vision-based automation and robotic guidance systems.

Learning Outcomes:

- Integrate vision sensors with robotics.
- Configure calibration and inspection systems.
- Analyze system accuracy.

Learning Objectives:
Students develop applied skills in intelligent automation.

ET 4421 - Machine Vision and Robotics Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4420

Description:
Laboratory implementation of vision-guided robotic systems.

Learning Outcomes:

- Configure vision hardware and software.
- Implement inspection and guidance tasks.
- Validate performance.

Learning Objectives:
Students gain hands-on experience deploying machine-vision systems.

ET 4430 - AI-Driven Automation and IIoT (3)

Contact Hours: 2 lecture, 3 laboratory
Prerequisite: ET 2030 and ET 2050

Description:
Application of artificial intelligence and Industrial Internet of Things technologies to smart manufacturing systems.

Learning Outcomes:

- Design IIoT architectures.
- Apply predictive analytics.
- Evaluate ethical and security considerations.

Learning Objectives:
Students integrate control, data, and AI for intelligent automation.

ET 4431 - AI-Driven Automation and IIoT Laboratory (1)

Contact Hours: 3 laboratory
Corequisite: ET 4430

Description:
Laboratory deployment of IIoT and AI-enabled automation systems.

Learning Outcomes:

- Implement real-time data pipelines.
- Deploy analytics dashboards.
- Validate system performance.

Learning Objectives:
Students gain applied experience with AI-enabled industrial systems.

Global Note on Instructional Format

All Engineering Technology courses use integrated lecture–laboratory instruction. Contact hours are provided for scheduling and planning purposes.

E. Pro Forma Budget ***HLC requirement***

Pro forma budget and revenue plans for the first five years are presented in three tables reflecting the worst-case, most-likely, and best-case enrollment scenarios. Revenue projections follow a conservative model in which incremental tuition revenue is generated only by external (new-to-OU) students. Internal transfer students, estimated at 10 per year, are included for enrollment planning purposes but are excluded from revenue calculations to avoid overstating net tuition revenue.

The proposed BSET program at Oakland University has been evaluated under three scenarios (worst case, most likely case, and best case) over a five-year planning horizon. The pro forma budget and revenue plans for Years 1-5 are summarized in Tables E1-E3.

Revenue projections for the BSET program are based on a conservative model in which incremental tuition revenue is generated only by external students. An estimated 10 internal transfer students per year are included for enrollment planning but are excluded from revenue calculations.

SBRC Proforma Template	Add Program Name Here					FY2026
Most Likely Scenario						
		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		28	47	62	69	74
1st Year Cohort Revenue		$ 496,020	$ 832,605	$ 1,098,330	$ 1,222,335	$ 1,310,910
2nd Year Cohort Revenue		$ -	$ 496,020	$ 832,605	$ 1,098,330	$ 1,222,335
3rd Year Cohort Revenue		$ -	$ -	$ 642,180	$ 1,077,945	$ 1,421,970
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ 496,020	$ 1,328,625	$ 2,573,115	$ 3,398,610	$ 3,955,215
Less: Avg Financial Aid (30%)		$ (148,806)	$ (398,588)	$ (771,935)	$ (1,019,583)	$ (1,186,565)
Net Tuition Revenue		**$ 347,214**	**$ 930,038**	**$ 1,801,181**	**$ 2,379,027**	**$ 2,768,651**
Expenses						
Salaries						
Faculty Salaries	6101					
Special Instructors/PoP Salaries	6101	76000	155800	239590	327570	419948
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211	$ -	$ -	$ 50,540	$ 51,804	$ 53,099
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Part-Time Faculty	6301	$35,000	$49,000	$49,000	$49,000	$49,000
Graduate Assistant	6311	$ -	$ -	$ -	$ -	$ -
Graduate Assistant - Wellness	6311	$ -	$ -	$ -	$ -	$ -
Casual/Temp	6401	$ 19,760	$ 19,760			
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 145,760**	**$ 239,560**	**$ 354,130**	**$ 443,373**	**$ 537,047**
Fringe Benefits	6701	$ 38,565	$ 74,318	$ 135,080	$ 173,912	$ 214,670
Total Compensation		**$ 184,325**	**$ 313,878**	**$ 489,210**	**$ 617,285**	**$ 751,717**
Operating Expenses						
Supplies and Services	7101	$ 30,000	$ 35,000	$ 40,000	$ 45,000	$ 50,000
Graduate Tuition	7101	-	-	-	-	-
E-Learning Support	7102					
Travel	7201					
Equipment	7501	$ 100,000	$ 250,000	$ 200,000	$ 75,000	$ 75,000
Maintenance	7418					
Recruitment and advertising	7401	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 10,000
Library	7401	$ 1,850	$ 1,020	$ 1,122	$ 1,234	$ 1,358
Faculty Startup Funding		$ -	$ -	$ -	$ -	$ -
Total Operating Expenses		$ 156,850	$ 311,020	$ 266,122	$ 146,234	$ 136,358
Total Expenses		**$ 341,175**	**$ 624,898**	**$ 755,332**	**$ 763,519**	**$ 888,075**
University Overhead		$ 84,000	$ 225,000	$ 327,000	$ 393,000	$ 429,000
Net Income (Loss)		**$ (77,961)**	**$ 80,140**	**$ 718,849**	**$ 1,222,508**	**$ 1,451,576**

***Table E1**: Most likely case scenario for BSET proposed budget*

SBRC Proforma Template

Add Program Name Here

FY2026

Best-Case Scenario

		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		50	80	110	140	170
1st Year Cohort Revenue		$ 885,750	$ 1,417,200	$ 1,948,650	$ 2,480,100	$ 3,011,550
2nd Year Cohort Revenue		$ -	$ 885,750	$ 1,417,200	$ 1,948,650	$ 2,480,100
3rd Year Cohort Revenue		$ -	$ -	$ 1,146,750	$ 1,834,800	$ 2,522,850
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ 885,750	$ 2,302,950	$ 4,512,600	$ 6,263,550	$ 8,014,500
Less: Avg Financial Aid (30%)		$ (265,725)	$ (690,885)	$ (1,353,780)	$ (1,879,065)	$ (2,404,350)
Net Tuition Revenue		**$ 620,025**	**$ 1,612,065**	**$ 3,158,820**	**$ 4,384,485**	**$ 5,610,150**
Expenses						
Salaries						
Faculty Salaries	6101					
Special Instructors/PoP Salaries	6101	76000	155800	239590	327570	419948
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211	$ 32,000	$ 32,800	$ 33,620	$ 34,461	$ 35,322
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Part-Time Faculty	6301	$35,000	$49,000	$49,000	$49,000	$49,000
Graduate Assistant	6311	$ -	$ -	$ -	$ -	$ -
Graduate Assistant - Wellness	6311	$ -	$ -	$ -	$ -	$ -
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 158,000**	**$ 252,600**	**$ 337,210**	**$ 426,030**	**$ 519,270**
Fringe Benefits	6701	$ 38,565	$ 74,318	$ 135,080	$ 173,912	$ 214,670
Total Compensation		**$ 196,565**	**$ 326,918**	**$ 472,290**	**$ 599,942**	**$ 733,940**
Operating Expenses						
Supplies and Services	7101	$ 30,000	$ 35,000	$ 40,000	$ 45,000	$ 50,000
Graduate Tuition	7101	-	-	-	-	-
E-Learning Support	7102					
Travel	7201					
Equipment	7501	$ 100,000	$ 250,000	$ 200,000	$ 75,000	$ 75,000
Maintenance	7110					
Recruitment and advertising	7101	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 10,000
Library	7401	$ 1,850	$ 1,020	$ 1,122	$ 1,234	$ 1,358
Faculty Startup Funding		$ -	$ -	$ -	$ -	$ -
Total Operating Expenses		$ 156,850	$ 311,020	$ 266,122	$ 146,234	$ 136,358
Total Expenses		**$ 353,415**	**$ 637,938**	**$ 738,412**	**$ 746,176**	**$ 870,298**
University Overhead		$ 150,000	$ 390,000	$ 570,000	$ 750,000	$ 930,000
Net Income (Loss)		**$ 116,610**	**$ 584,127**	**$ 1,850,408**	**$ 2,888,309**	**$ 3,809,852**

***Table E2**: Best case scenario for BSET proposed budget*

SBRC Proforma Template		Add Program Name Here				FY2026
Worst-Case Scenario						
		Year 1	Year 2	Year 3	Year 4	Year 5
Est. New Students to Program		10	20	30	40	50
1st Year Cohort Revenue		$ 177,150	$ 354,300	$ 531,450	$ 708,600	$ 885,750
2nd Year Cohort Revenue		$ -	$ 177,150	$ 354,300	$ 531,450	$ 708,600
3rd Year Cohort Revenue		$ -	$ -	$ 229,350	$ 458,700	$ 688,050
4th Year Cohort Revenue		$ -	$ -	$ -	$ -	$ -
Gross Tuition Revenue		$ 177,150	$ 531,450	$ 1,115,100	$ 1,698,750	$ 2,282,400
Less: Avg Financial Aid (30%)		$ (53,145)	$ (159,435)	$ (334,530)	$ (509,625)	$ (684,720)
Net Tuition Revenue		**$ 124,005**	**$ 372,015**	**$ 780,570**	**$ 1,189,125**	**$ 1,597,680**
Expenses						
Salaries						
Faculty Salaries	6101					
Special Instructors/PoP Salaries	6101	76000	155800	239590	327570	419948
Visiting Faculty	6101					
Administrative Professionals	6201					
Clerical Technical	6211	$ 32,000	$ 32,800	$ 33,620	$ 34,461	$ 35,322
Administrative IC	6221					
Faculty Inload/Replacement Costs	6301					
Faculty Overload	6301	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Part-Time Faculty	6301	$35,000	$49,000	$49,000	$49,000	$49,000
Graduate Assistant	6311	$ -	$ -	$ -	$ -	$ -
Graduate Assistant	6311	$ -	$ -	$ -	$ -	$ -
Casual/Temp	6401					
Out of Classification	6401					
Student Labor	6501					
Total Salary Expense		**$ 158,000**	**$ 252,600**	**$ 337,210**	**$ 426,030**	**$ 519,270**
Fringe Benefits	6701	$ 38,565	$ 74,318	$ 135,080	$ 173,912	$ 214,670
Total Compensation		**$ 196,565**	**$ 326,918**	**$ 472,290**	**$ 599,942**	**$ 733,940**
Operating Expenses						
Supplies and Services	7101	$ 35,000	$ 35,000	$ 35,000	$ 35,000	$ 35,000
Graduate Tuition	7101	$ -	$ -	$ -	$ -	$ -
E-Learning Support	7102					
Travel	7201					
Equipment	7501	$ 100,000	$ 250,000	$ 200,000	$ 75,000	$ 75,000
Maintenance	7110					
Recruitment and advertising	7101	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 10,000
Library	7401	$ 1,850	$ 1,020	$ 1,122	$ 1,234	$ 1,358
Faculty Startup Funding		$ -	$ -	$ -	$ -	$ -
Total Operating Expenses		$ 161,850	$ 311,020	$ 261,122	$ 136,234	$ 121,358
Total Expenses		**$ 358,415**	**$ 637,938**	**$ 733,412**	**$ 736,176**	**$ 855,298**
University Overhead		$ 30,000	$ 90,000	$ 150,000	$ 210,000	$ 270,000
Net Income (Loss)		**$ (264,410)**	**$ (355,923)**	**$ (102,842)**	**$ 242,949**	**$ 472,382**

***Table E3**: Worst case scenario for BSET proposed budget*

Worst Case Scenario (E3): Begins with a small initial BSET cohort of 10 external students in Year 1 and grows to 50 external students by Year 5. Net income remains negative through Year 3, improving from a Year 1 loss of $264,410 to a Year 3 loss of $102,842, before reaching a positive annual net of $472,382 in Year 5. Exact annual net-income values are reported in Table 20.

Most Likely Scenario (Table E1): Uses external new-student intake targets of 40, 65, 80, 85, and 90 students in Years 1 through 5, respectively, with an additional approximately 10 internal transfers per year included in enrollment planning but excluded from revenue calculations. If adjusted for transfers vs OU start students, the revenue generating students would be 28 in Y1 and increasing to 72 in Y5. Under this scenario, the program records a Year 1 net loss of $77,961, reflecting normal startup activity. The program transitions to a positive annual net position of $80,140 in Year 2, increasing to $718,849 in Year 3 and $1,222,508 in Year 4. By Year 5, annual net income reaches $1,451,576.

By the end of Year 5, the most likely scenario generates a cumulative five-year net surplus of approximately $3.39 million.

Best Case Scenario (Table E2): Assumes stronger external enrollment growth across the five-year window, with external new-student intake of 50, 80, 110, 140, and 170 students in Years 1 through 5, respectively. The program generates a positive net income of $116,610 in Year 1 and this continues to grow to $3,809,852 in Year 5.

F. Library Budget Report *****HLC requirement*****

OAKLAND UNIVERSITY

Libraries

November 21, 2025

To: Asaad Makki, Visiting Assistant Professor, Department of Mechanical Engineering, School of Engineering and Computer Science

From: James E. Van Loon, Assistant Professor and Liaison Librarian to SECS, University Libraries

Helen Levenson, Associate Professor and Collection Development Librarian, University Libraries

Re: Library collection evaluation for proposed B.S. program in Engineering Technology

In developing this collection evaluation, we reviewed the draft proposal for the bachelor's program in Engineering Technology, as well as title lists of core journals and resources in the field. Overall, the library is well-positioned to support the proposed program; only a few resources should be added to strengthen the collection in subject areas relevant to the new program. Below is a brief description of the resources currently available, those that should be acquired, and a five-year cost estimate in support of this proposed program.

Journals and Conference Proceedings

Currently the library subscribes to the IEEE digital library, which includes all journals, proceedings and standards produced by the IEEE in subject areas including robotics, automation, and industrial technology and informatics. The library also subscribes to the ACM digital library, which provides access to all journals, proceedings and conferences published by the ACM in subject areas including human-robot interaction and autonomous systems. These two resources, along with the library's selective subscriptions to journals published by Springer, Wiley, and Elsevier provide full-text access to most of the current journal and proceedings literature.

Interlibrary loan (ILL) also provides quick, digital access to other relevant articles and proceedings. Our review of the major journals (Appendix A) and major proceedings and book series (Appendix B) in this subject area lead us to conclude that the library's current holdings of journals and proceedings would provide strong support for the new program with the addition of subscriptions to two journals recommended below.

Two journals not currently subscribed to by the library (Journal of Manufacturing Systems, and Robotics and Computer Integrated Manufacturing) have been identified in Appendix A for acquisition; ***however, funding for subscriptions to these journals has already been included in the budget for the M.S. in Smart Manufacturing program, a program approved by the Board of Trustees on February 7, 2025 and launching in Fall 2025.*** These journals publish articles on a range of topics relevant to the proposed B.S. in Engineering Technology program and are subscribed to by the targeted peer institutions; as such they represent key resources to which immediate online access will be a benefit for students and faculty of the Engineering Technology program.

Databases and Indexes

To access the journal and conference literature in Engineering Technology, the University Libraries maintain subscriptions to a number of online databases and indexes. The most important of these are Scopus (an Elsevier product), which indexes journals and conferences across all subjects; and Science Citation Index (available online through the Web of Science platform), which indexes journals from 1980 to present in the sciences. The library also provides access to Applied Science and Technology Source, which covers both academic and trade journal literature in science and technology. Other important resources include the ACM Digital Library and IEEE Xplor, both of which index journals and conferences published by their respective societies. No additional indexes are needed to support the proposed program adequately.

Monographs and Reference Sources

The library purchases several ebook collections from Springer each year, and these collections provide coverage of the key Springer book series relevant to Engineering Technology including Lecture Notes in Networks and Systems (2019-present), Lecture Notes in Mechanical Engineering (2012-present), Lecture Notes in Electrical Engineering (2007-present), and Lecture Notes in Computer Science (1973-present). The library also holds all titles in the IEEE-Wiley eBooks Library published 1974-2025, which covers topics including robotics, control systems, and industrial applications. Table 1 shows the library's holdings (total, and recently acquired) in the Library of Congress classifications most relevant to the proposed B.S. program in Engineering Technology, with shading to indicate gaps in the collection.

To ensure that the libraries' monographic collection adequately supports the new proposed bachelor's degree program, we recommend the purchase of monographs and reference eBooks (approximately 10 in the first year and 5 in each of the four subsequent years) in the subject areas highlighted in Table 1.

Table 1: Monographic titles held by OU in subjects relevant to the proposed B.S. in Engineering Technology

LOC class	LOC class description	All titles	Titles published last 5 years
T59.5	Automation	56	25
TA165	Industrial instrumentation	54	5
TA342	Engineering mathematics - Mathematical models	192	58
TA345	Computer-aided engineering - general works	461	318
TA349-355	Applied mechanics	140	7
TA357	Applied fluid mechanics - general works	675	137
TJ153	Machinery - monitoring	28	1
TJ163.12	Mechatronics	161	41
TJ174	Machinery - maintenance and repair	2	0
TJ210.2 - 211.5	Robotics	424	31
TJ212 - 224	Control engineering	830	61
TJ223.P76	Programmable controllers	71	3
TJ225	Control systems engineering - applications	5	0
TS155.6 - 155.8	CAD/CAM systems	163	10
TS173	Reliability of industrial products	25	1
TS191.8	Industrial robots	21	1

Note: Shaded rows indicate subject areas having gaps in the collection.

Library Budget Request

Appendix C provides cost estimates for new resources needed to support the proposed program:

- Purchase ten ebooks in the first year and five ebooks in each of the 2nd - 5th years on topics having gaps in the collection (average current cost for these monographs is $185)

Because this program will rely largely on existing library resources, we have also included funding to cover anticipated annual inflationary cost increases for the library's current journals and research databases (estimated at ten percent per year) related to Engineering Technology. Without additional funding, the library cannot guarantee that we will be able to continue to subscribe to our current resources. Therefore, we ask that the library be given funds each year to assist us in continuing to subscribe to these necessary resources for computer science faculty and students.

Appendix A

Major Journals - Engineering Technology

Title	Publisher	OU Access
Applied Sciences (Switzerland)	MDPI	open access
Computer Applications in Engineering Education	John Wiley & Sons	yes
Electronics (Switzerland)	MDPI	open access
Energies	MDPI	open access
Engineering Applications of Artificial Intelligence	Elsevier	ILL
Expert Systems with Applications	Elsevier	ILL
IEEE Access	IEEE	yes
IEEE Internet of Things Journal	IEEE	yes
IEEE Sensors Journal	IEEE	yes
IEEE Transactions on Automation Science and Engineering	IEEE	yes
IEEE Transactions on Industrial Informatics	IEEE	yes
Industrial Robot	Emerald Publishing	yes (12 month embargo)
International Journal of Advanced Manufacturing Technology	Springer Nature	yes
International Journal on Interactive Design and Manufacturing	Springer Nature	yes
Journal of Cleaner Production	Elsevier	yes
Journal of Manufacturing Systems	Elsevier	ILL[1]
Machines	MDPI	open access
Materials	MDPI	open access
Robotic Intelligence and Automation (formerly Assembly Automation)	Emerald Publishing	yes (12 month embargo)
Robotics and Computer Integrated Manufacturing	Elsevier	ILL[1]
Scientific Reports	Springer Nature	open access
Sensors	MDPI	open access
Sensors	MDPI	open access
Sustainability (Switzerland)	MDPI	open access

[1]New subscription included in budget of M.S. Smart Manufacturing, launching F25.

Appendix B

Major Conference Proceedings and Series - Engineering Technology

Title	Publisher	OU Access
ACM International Conference Proceeding Series	ACM	yes
Advances in Intelligent Systems and Computing	Springer	ILL
Aip Conference Proceedings	American Institute of Physics	yes
ASEE Annual Conference and Exposition Conference Proceedings	ASEE	open access
Ceur Workshop Proceedings	RWTH Aachen University	open access
Communications in Computer and Information Science	Springer	yes
E3s Web of Conferences	EDP Sciences	open access
IEEE Global Engineering Education Conference Educon	IEEE	yes
IEEE International Conference on Emerging Technologies and Factory Automation ETFA	IEEE	yes
IFAC Papersonline	Elsevier	open access
IFIP Advances in Information and Communication Technology	Springer	ILL
Iop Conference Series Earth and Environmental Science	IOP Publishing	open access
Iop Conference Series Materials Science and Engineering	IOP Publishing	open access
Journal of Physics Conference Series	IOP Publishing	open access
Lecture Notes in Business Information Processing	Springer	yes
Lecture Notes in Computer Science	Springer	yes
Lecture Notes in Electrical Engineering	Springer	yes
Lecture Notes in Mechanical Engineering	Springer	yes
Lecture Notes in Networks and Systems	Springer	yes
Procedia CIRP	Elsevier	open access
Procedia Computer Science	Elsevier	open access
Procedia Manufacturing	Elsevier	open access
Proceedings of SPIE the International Society for Optical Engineering	SPIE	ILL
SAE Technical Papers	SAE International	yes
Smart Innovation Systems and Technologies	Springer	yes

Appendix C
Library Budget for Proposed B.S. in Engineering Technology

	Year 1	Year 2	Year 3	Year 4	Year 5
Monographs[1&2]	$ 1,850	$ 1,020	$ 1,122	$ 1,234	$ 1,358
Support for current resources[2]	$ 5,000	$ 5,500	$ 6,050	$ 6,655	$ 7,321
Total	$ 6,850	$ 6,520	$ 7,172	$ 7,889	$ 8,679

[1]Presumes the purchase of 10 ebooks for the first year and 5 ebooks per year thereafter within the identified LC classifications
[2]Presumes a 10% annual inflation rate

cc: Polly Boruff-Jones, Dean of University Libraries
James Van Loon, University Libraries Representative to University Senate

G. University Assessment Plan ***HLC requirement***

Assessment Overview
The BSET program participates in the SECS continuous-improvement process and aligns with Oakland University's institutional assessment cycle and HLC Criterion 4.B. Program assessment is conducted through direct and indirect measures maintained in the SECS assessment archives and shared college resources. Course-embedded artifacts, faculty-scored rubrics, student surveys, and Industry Advisory Board (IAB) feedback provide evidence of student learning and are reviewed annually by the Engineering Technology faculty to inform curriculum adjustments, laboratory enhancements, and long-term accreditation readiness.

All assessment materials are retained in SECS assessment archives and faculty repositories to support ongoing evaluation and continuous improvement activities. The following table maps ABET Engineering Technology Accreditation Commission Student Outcomes (1–5) to the BSET courses, assessment artifacts, and performance evidence used for direct evaluation.

ETAC Student Outcome (Baccalaureate)	***Description (ETAC 2026–2027)***	***Primary Direct Assessment Courses***	***Evidence Type***	***Assessment Frequency***
Outcome 1	*Apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.*	*MTH 1222 or MTH 1554; EGR 1000; EGR 2600; ET 2010; ET 2040; PHY 1010+1100; PHY 1020+1110*	*Exams, laboratory reports, analytical problem sets*	*Each term; aggregated annually*
Outcome 2	*Design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.*	*ET 3010; ET 3020; ET 4020; ET 4998; ET 4999*	*Prototype reviews, design documentation tied to specified needs/constraints, verification plans*	*Annual capstone cycle*
Outcome 3	*Apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and identify and use appropriate technical literature.*	*WRT 1060; ET 1200; ET 4020; ET 4999*	*Technical reports, presentations, WIM rubrics (if applicable), annotated bibliographies/literature use checklists*	*Annual capstone and General Education cycle*
Outcome 4	*Conduct standard tests, measurements, and experiments;*	*ET 2030; ET 2040; ET 2050; ET 4320/4321*	*Lab experiments, calibration/instrumentation deliverables, process-*	*Each semester; aggregated*

ETAC Student Outcome (Baccalaureate)	Description (ETAC 2026–2027)	Primary Direct Assessment Courses	Evidence Type	Assessment Frequency
	analyze and interpret the results to improve processes.	(if pathway); ET 4999	improvement memos/SPC analyses	annually
Outcome 5	Function effectively as a member as well as a leader on technical teams.	ET 2000; ET 3010; ET 4998; ET 4999	Peer/team evaluations, team-performance rubrics, leadership reflections	Annual aggregation from team-based courses

Table G-1: Mapping of ABET ETAC Student Outcomes (1–5) to Direct Assessment Artifacts

Program-Specific Outcomes: Standards and Ethical Responsibility
These program-specific outcomes are assessed as part of the curriculum but are not designated ABET ETAC Student Outcomes. In addition to the ABET ETAC baccalaureate student outcomes, the BSET program assesses program-specific outcomes that address professional standards, ethics, public safety, and societal impact. These outcomes support curriculum requirements and professional expectations but are not designated as ABET ETAC student outcomes.

Program Outcome A – Standards and Professional Practice
Students demonstrate the ability to identify, interpret, and apply relevant engineering standards, codes, and professional practices in engineering-technology applications.
Primary Assessment Courses:
ET 2040; ET 3020; ET 4998; ET 4999
Evidence:
Standards-compliance matrices, safety analyses, design reviews, and capstone documentation referencing IEEE, IEC, NFPA, ISO, ASME, and related standards.

Program Outcome B – Ethical, Societal, and Global Responsibility
Students demonstrate ethical and professional responsibility and an understanding of the societal and global impacts of engineering-technology solutions.
Primary Assessment Courses:
ET 2000; ET 4999; General Education coursework in Global Perspectives and Diversity
Evidence:
Ethics case analyses, societal-impact reflections, capstone ethical justification sections, and professional responsibility evaluations.

Use of Assessment Results
All assessment materials are retained in SECS assessment archives and faculty repositories. Results are reviewed annually and used to support continuous improvement through documented faculty discussions, curriculum adjustments, instructional refinements, and input from the Industrial Advisory Board. This process ensures sustained alignment between student learning outcomes, curriculum delivery, and professional expectations.

Data Management and Review Cycle
Assessment evidence is uploaded each semester by course coordinators into the SECS assessment archive maintained by the college. The Engineering Technology faculty, serving as the program's Assessment Committee, review student-outcome data annually, identify action

items, and document improvements. Results are shared with faculty, the Industrial Advisory Board, and the Dean's Office. Continuous-improvement actions (curricular revisions, laboratory updates, faculty development needs, and resource adjustments) are recorded in the program's Assessment and Continuous-Improvement Plan.

Summary Statement

The BSET Assessment Plan supports systematic evaluation and continuous improvement by documenting student learning performance, course-embedded assessment evidence, and resulting improvement actions. The plan also fulfills Oakland University's institutional assessment expectations under UAC Policy 1120. Annual assessment results are reviewed by program faculty and used to guide curricular adjustments, identify faculty development needs, and inform program-level planning and resource decisions.

H. Support Letters (e.g., Professional Societies, Governmental Agencies, Prospective Employers, Professionals in the Field)

The proposed BSET program has received strong written support from several leading employers and educational partners across Michigan's advanced manufacturing, automotive, and semiconductor sectors. Each endorsement confirms that the program's applied, workforce-aligned curriculum directly addresses regional and national talent gaps in automation, robotics, mechatronics, and applied AI. Signed endorsement letters are provided in this Appendix.

OAKLAND COMMUNITY COLLEGE®
Excellence *Empowered.*®

Date: October 8, 2025

Office of the Provost
School of Engineering and Computer Science
Oakland University
Rochester, MI 48309

Subject: Letter of Support for the Bachelor of Science in Engineering Technology (BSET)

Dear Colleagues,

On behalf of Oakland Community College (OCC), I am pleased to offer our strong support for Oakland University's proposed *Bachelor of Science in Engineering Technology (BSET)* program within the School of Engineering and Computer Science (SECS).

OCC's long-standing partnership with Oakland University has produced many successful transfer pathways in STEM and applied technical fields. The proposed BSET degree represents a logical and much-needed next step: a 90-credit, transfer-friendly program that provides our graduates with a seamless route from an OCC associate degree in applied engineering, mechatronics, or manufacturing technology to a bachelor's credential emphasizing hands-on, industry-aligned learning.

The BSET's 2+1 structure, focus on automation, robotics, and applied AI, and clear connection to Michigan's advanced manufacturing workforce needs make it particularly relevant for our student population: including working adults, veterans, and first-generation learners. We see this as a powerful tool for upward mobility and regional economic growth.

OCC looks forward to finalizing articulation agreements, co-hosting advising sessions, and continuing our collaboration with Oakland University to ensure students experience a friction-free transfer process and timely completion of their bachelor's degree.

We enthusiastically endorse this proposal and commend Oakland University for its innovative approach to expanding access to applied engineering education in Southeast Michigan.

Sincerely,
Beau Everitt
Dean of Engineering, Manufacturing & Industrial Technologies
Oakland Community College

Date: October 9th 2025

School of Engineering and Computer Science
Oakland University
Rochester, Michigan

Subject: Letter of Support – Bachelor of Science in Engineering Technology (BSET)

Dear Dr. Makki

As a global leader in **semiconductor solutions** for automotive and industrial applications, **Melexis** is proud to express our full support for Oakland University's proposed **Bachelor of Science in Engineering Technology (BSET)** program within the School of Engineering and Computer Science (SECS).

The engineering technology workforce is critical to sustaining Michigan's innovation ecosystem. At Melexis, we depend on professionals who can connect advanced electronic design with real-world implementation—technologists who understand sensors, embedded systems, automation, and data-driven control.

Strategic Workforce Alignment for Melexis

The BSET program's emphasis on applied learning, robotics, mechatronics, and AI-enabled technology directly aligns with the skills and competencies needed in our operations.

Crucially, this program addresses an urgent need for talent capable of bridging the gap between theoretical engineering and practical execution on the factory floor and in production environments. For Melexis, such graduates are essential for ensuring the robust manufacturing and testing of our advanced chips, which are central to the future of smart mobility and Industry 4.0.

Accessibility and Partnership

We are particularly encouraged by the program's reduced credit hours, transfer-optimized design, which opens new pathways for community college graduates and working professionals to complete a bachelor's degree efficiently. This model not only meets workforce needs but also strengthens the state's pipeline of job-ready engineers and technologists.

Melexis looks forward to partnering with Oakland University through student internships, industry capstone projects, and participation on the BSET Industry Advisory Board. We believe this collaboration will help students gain exposure to the technologies shaping tomorrow's intelligent manufacturing systems.

We strongly endorse the BSET initiative and commend Oakland University for its proactive approach to developing an applied, workforce-responsive engineering degree that aligns with Michigan's Industry 4.0 goals.

Sincerely,
Raad Konja
Raad Konja

1 American Road, Dearborn, Michigan 48126

September 19, 2025

Dean, School of Engineering and Computer Science
Oakland University
Rochester, Michigan

Subject: Letter of Support – Bachelor of Science in Engineering Technology (BSET)

Dear Dean L. Chamra,

On behalf of the Vehicle Evaluation and Validation (VEV) organization at Ford Motor Company's Product Development Center in Dearborn, I am pleased to express strong support for Oakland University's Bachelor of Science in Engineering Technology (BSET) program.

This program directly addresses workforce needs in the automotive and mobility sectors. Its applied curriculum, covering automation, mechatronics, robotics, controls, and applied AI, aligns closely with Ford's priorities in product design, testing, and validation.

As Ford advances toward intelligent, connected, and electrified vehicles, we depend on technologists with both analytical and applied skills and that is precisely what the BSET graduates will offer. We look forward to future collaboration through capstone sponsorships, internships, and advisory engagement to strengthen the regional talent pipeline.

We fully endorse this program and commend Oakland University for leading an industry-aligned approach to applied engineering education in Southeast Michigan.

Sincerely,

J. D. Shanahan

J. D. Shanahan
Director, Vehicle Evaluation and Validation (VEV)
Ford Motor Company
Product Development Center
20901 Oakwood Blvd, Dearborn, MI 48124

ALTAIR

October 8, 2025
Dean, School of Engineering and Computer Science
Oakland University
Rochester, Michigan

Subject: Industry Endorsement for the Bachelor of Science in Engineering Technology (BSET)

Dear Dean Chamra,

As a global technology company providing software and cloud solutions across product development, high-performance computing, and data analytics solutions that optimize design, simulation, and decision-making for organizations worldwide. Altair Engineering is pleased to offer its full and enthusiastic support for Oakland University's proposed Bachelor of Science in Engineering Technology (BSET).

Our industry is experiencing a critical demand for graduates who possess the specialized skills to bridge the gap between theoretical design and practical implementation. Specifically, we require engineering technologists who are proficient in both advanced automation systems and hands-on integration. The proposed BSET program directly addresses this essential workforce need by prioritizing curriculum in robotics, mechatronics, automation, and applied AI areas that are absolutely vital to sustaining and advancing Michigan's industrial transformation.

Altair Engineering is highly interested in establishing a robust partnership with Oakland University to ensure the success of this program. We are prepared to contribute through various means, including: Sponsorship of student capstone projects, Provision of internships, Delivery of guest lectures by our subject matter experts & Potential equipment and software donations

This BSET program represents a timely, essential, and highly responsive strategy for meeting current employer demand within our region, and we look forward to collaborating with Oakland University on its implementation.

Sincerely,
Sarmad Khemmoro

Sarmad Khemmoro
Sr. Vice President – Technical Strategy for Electronics Design & Simulation
Altair Engineering

1820 E. Big Beaver Rd.
Troy, MI 48083 USA

p: 248 614 2400

altair.com

From: Bob Rapp <robert.rapp@gm.com>
Sent: Tuesday, October 7, 2025 10:59 AM
To: Asaad Makki <drmakki@hotmail.com>
Subject: [EXTERNAL] Letter of Support

Here it is...Bob

Dean, School of Engineering and Computer Science
Oakland University
Rochester, Michigan
Subject: Letter of Support – Bachelor of Science in Engineering Technology (BSET)

Dear Dean L. Chamra,

As a Data Scientist – AI and Technical Advisor to the CEO at General Motors, I am pleased to express strong support for Oakland University's proposed Bachelor of Science in Engineering Technology (BSET) program.

The rapid integration of automation, AI, and advanced manufacturing is transforming how GM designs and builds next-generation vehicles. The BSET's applied focus on mechatronics, robotics, data-driven systems, and automation technologies aligns directly with the skill sets our teams need to sustain Michigan's leadership in electrification and smart manufacturing.

The program's accelerated curricullum, transfer-friendly structure creates new access points for community-college graduates, veterans, and working adults, groups critical to strengthening the regional talent pipeline. We see clear value in graduates who are ready to move seamlessly from lab to production environments.

GM looks forward to collaborating with Oakland University through capstone sponsorships, internships, and advisory engagement to ensure continuous alignment with industry standards and emerging technologies.

We commend Oakland University and SECS for designing a program that so effectively integrates applied engineering education with real-world industry needs.

Sincerely,

Bob Rapp
Data Scientist – AI / Technical Advisor to the CEO
General Motors Company

I. University Communications and Marketing plan ***HLC requirement***

This appendix outlines Oakland University's comprehensive communications and marketing strategy to support the launch, recruitment, and sustained enrollment of the Bachelor of Science in Engineering Technology (BSET) program within the School of Engineering and Computer Science (SECS).

The plan satisfies Higher Learning Commission (HLC) expectations for new academic programs by demonstrating how the University will ensure public awareness, accurate representation, and equitable access to the program through coordinated, multi-channel outreach.

1. Strategic Messaging Framework

Program Identity

The BSET will be positioned as: *"An accelerated, workforce-aligned engineering technology degree integrating automation, robotics, and applied AI."*

Core Messaging Themes

1. **Applied and accelerated** – emphasizes hands-on laboratories, industry-sponsored projects, and three-year completion design.
2. **AI-Integrated Curriculum** – highlights practical AI, smart systems, and digital manufacturing applications.
3. **Transfer-Optimized Pathways** – promotes the seamless 2 + 1 and 3 + 0 models with Michigan community colleges.
4. **Inclusive Access** – underscores support for first-generation students, veterans, working adults, and underrepresented groups in STEM.
5. **Career Readiness** – features industry credentials (FANUC Robotics, Siemens Mechatronics, OSHA, Python for Automation) and regional employer demand.

Messaging will remain consistent across all University communication channels and external partner materials.

2. Target Audiences

Segment	***Primary Motivation***	***Communication Channels***
Community-college students / MTA completers	*Affordable completion pathway and transfer credit recognition*	*Transfer fairs, articulation materials, community-college newsletters*
High-school students / counselors	*Early exposure to applied engineering careers*	*Digital advertising, campus visits, high-school outreach*
Veterans and adult learners	*Career re-entry and credentialing*	*OU Online, Veterans Affairs office, regional workforce boards*
Industry partners and employers	*Workforce pipeline and upskilling collaboration*	*Industry advisory board updates, Chamber of Commerce briefings, corporate outreach*

Segment	*Primary Motivation*	*Communication Channels*
Internal stakeholders (OU faculty, advisers, SECS leadership)	*Consistent program narrative*	*Faculty meetings, intranet news, OU Today articles*

3. Marketing Channels and Tactics

Digital Presence

- **Dedicated OU BSET web page** within the SECS domain featuring:
  - Program overview and degree plan (90 credits minimum, sample 3-year schedule)
  - Admission and transfer steps
  - Embedded video testimonials from faculty and industry partners
  - "Request Information" and "Apply Now" conversion links
- **Search-Engine Optimization (SEO)** for key phrases: *Engineering Technology degree Michigan, Applied AI automation program, transfer-friendly engineering degree.*
- **Digital advertising campaigns** on Google Ads and LinkedIn Ads targeting Michigan counties in the Detroit–Warren–Dearborn MSA.

Social Media

- Coordinated posts across OU Engineering, OU Admissions, and OU Main channels emphasizing:
  - Student spotlights and lab demonstrations
  - Industry-partner internships and capstone projects
  - BSET open-house and information-session invitations

Print and Collateral

- Brochure series and one-page program sheets distributed to:
  - Community colleges (Macomb, Oakland, Washtenaw, Schoolcraft, Henry Ford)
  - Michigan Career Outlook Fairs and SECS Recruitment events
- Inclusion in the OU Undergraduate Catalog and Admissions Viewbook.

Events

- **Launch Event (Year 1 Fall)**: joint SECS–Industry showcase featuring student demonstrations, employer panels, and press coverage.
- **Annual "Applied Engineering Open House"**: demonstration day at the MUC and OU Main Campus.

4. Partnership Coordination

- **Office of University Communications and Marketing (UCM):**
  - Develops visual identity, branding, and media releases.
  - Manages website design, digital advertising, and news features.
- **SECS Recruitment Team:**
  - Leads academic content creation, transfer-fair participation, and industry communication.
- **Admissions and Transfer Student Services:**
  - Integrates BSET into Slate CRM campaign workflows.
- **Industry Relations Office:**
  - Promotes co-op, internship, and sponsorship opportunities tied to capstone projects.

5. Timeline and Phasing

Phase	*Period*	*Key Activities*
Phase 1 – Pre-Launch Awareness	*6–9 months before first admission cycle*	*Brand identity approval, web launch, teaser video, digital ads, transfer-fair participation*
Phase 2 – Launch Year (Fall 2026)	*Program approval → first cohort*	*Press release, social-media push, feature stories, high-school counselor outreach*
Phase 3 – Growth and Retention (Years 2–5)	*Ongoing*	*Annual campaign refresh, student success stories, alumni testimonials, employer outcome highlights*

6. Performance Metrics

- Website analytics: sessions, click-through rate, and inquiry-to-application conversion.
- Transfer and freshman applications count by semester.
- Event attendance and digital engagement metrics.
- Enrollment growth targets (50 → 150 students by Year 5). Total new-student intakes (external + internal transfers)
- Employer partnership count and internship placements.
- Media mentions and social-media reach.

UCM will provide quarterly analytics to SECS leadership for data-driven refinement of outreach strategies.

7. Equity and Accessibility Commitment

All materials will comply with ADA Section 508 accessibility standards, OU branding guidelines, and HLC Criterion 3.C for public information accuracy. Marketing content will feature diverse imagery and inclusive language to reflect Oakland University's student population and DEI mission.

8. Budget and Resource Coordination

Marketing investments will be coordinated between SECS (program-specific promotion) and University Communications & Marketing (digital placement, branding compliance). Annual spend adjusts as market awareness increases.

Marketing Budget by Year

Category	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*	*Notes*
Digital Ads / SEO	*$12,000*	*$12,000*	*$12,000*	*$7,500*	*$5,000*	*Target community-college regions*
Print Collateral / Brochures	*$4,000*	*$4,000*	*$4,000*	*$3,000*	*$2,000*	*Transfer fairs + industry events*
Video / Photography	*$5,000*	*$5,000*	*$5,000*	*$2,500*	*$1,500*	*Program spotlights and lab tours*

Category	Year 1	Year 2	Year 3	Year 4	Year 5	Notes
Launch / Partnership Events	*$4,000*	*$4,000*	*$4,000*	*$2,000*	*$1,500*	*Industry showcases, MUC presence*
Total Annual Marketing Spend	***$25,000***	***$25,000***	***$25,000***	***$15,000***	***$10,000***	*Scaling down as brand awareness grows*

9. Assessment and Continuous Improvement

- Annual review with UCM and SECS Enrollment Committee to analyze outcomes related to enrollment goals.
- Adjust messaging and channel mix based on conversion data.
- Incorporate student and employer feedback into marketing narratives to maintain authenticity and alignment with workforce needs.

The University Communications and Marketing plan ensures sustained visibility and growth for the BSET program through coordinated, data-driven messaging that emphasizes *applied learning, AI integration, transfer accessibility, and workforce readiness.*
This integrated approach fulfills HLC expectations for transparent, student-centered communication and supports long-term program sustainability.