Program Review (12-11-2020)
UW-Green Bay Mechanical Engineering Technology

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The **Mechanical Engineering Technology BS** is part of the **Resch School of Engineering**, housed in the **College of Science, Engineering, and Technology** led by **Dean John Katers**.

General and Overview

1. Describe your program's most significant opportunities and significant challenges. (Narrative)

The Mechanical Engineering Technology program's best opportunity remains meeting the regional manufacturing community's need for skilled employees and providing students with adequate opportunities for internships that lead to jobs after graduation. The most significant challenge continues to be resources, specifically faculty. This challenge is common to the Mechanical Engineering BS. The latter program grew faster than anticipated, requiring more than one section of some classes, which has put a strain on faculty resources. We meet the curricular needs of both programs via overloads and ad-hoc instruction. The total growing number of Engineering and Engineering Technology students has also strained Physics and Mathematics faculty resources.

Another challenge is that of serving traditional students and returning students/technical college transfers. The latter group may work full time and would prefer evening classes or more on-line options, while the first group prefer daytime and in-person classes. When resources only allow us to offer one section of a course, we cannot satisfy both groups.

2. What are some things that would help make your program and its students more successful? (Narrative)

As stated above, the faculty resources to offer both daytime and in-person classes vs evening and on-line classes would benefit some students. The most useful action that would benefit students would be increased tutoring for math, physics, chemistry, and basic engineering classes. Many students come to us under-prepared in basic quantitative skills and additional tutoring would help them. Finally, in many of our labs, we have only one piece of equipment, which limits hands-on lab opportunities or requires faculty to have labs that are not optimally aligned with lecture. Additional equipment would help, however, this equipment is often expensive, so I recognize that this is a luxury we likely cannot afford.

3. What are some program accomplishments worth highlighting? (Narrative)

Only three years after its launch, the Mechanical ET program had its first graduate in May 2017. Since then, there have been 33 program graduates with almost 100% success in job placement. The new STEM building on campus, opened in September 2019, adds five laboratory spaces and a computer lab for primarily MET and ME labs. (The computer lab has software to serve all Engineering Tech and Engineering majors). Contributions from regional industries and partners allowed for the purchase of state-of-the-art lab equipment in fluids, engineering measurements, engineering materials, and controls. There are also thirteen scholarships specifically for engineering technology majors.

4. Have there been any significant changes that have affected your program? (Narrative)

In 2019, UWGB launched a BS in Mechanical Engineering. Some MET students transitioned to ME, so enrollments initially dropped from a high of 83 majors in 2018-2019 to 58 majors in 2019-2020. Over time these numbers are anticipated to stabilize as some students will transition from the ME to the MET program. In addition, the initial two mechanical engineering faculty that were hired to support the MET program only allowed basic curricular needs to be met. The addition of two additional faculty to support the ME program, the ability to ad-hoc some lower level classes, and a curricular revision (discussed below) has allowed for some upper level elective courses in specific expertise areas.

5. Where do you want your program to be 5 to 7 years from now? (Narrative)

In five years, we would like the MET program to sustain at least seventy-five majors. These would either start at UWGB's Green Bay campus or at the Sheboygan campus with Mechanical Engineering majors there. We also plan to continue our transfer relationships with NWTC, FVTC, and other regional technical colleges to offer the Associate to BS completion option. We will continue to work with regional industries to offer internship and post-graduate employment for students. We are currently in the process of applying for ABET accreditation with a site visit planned for September 2021 and accreditation granted in Spring 2022. This latter was pushed back a year by ABET due to concerns of conducting a site visit in Fall 2020 during the pandemic.

Demand

Internal

1. Program goals (Mission, vision, learning outcomes; present as narrative/lists)

The **Mechanical Engineering Technology** program has the **Student Learning Outcomes** listed below. These are determined by ABET, the accreditation agency for engineering programs. Each

of these outcomes is assessed annually in a required upper level course and an annual review of this assessment drives curricular changes in the lower level curriculum.

Students in the Mechanical Engineering Technology program will successfully demonstrate

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
2. an ability to design systems, components, or processes meeting specific needs for broadly-defined engineering problems appropriate to the discipline;
3. an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
5. an ability to function effectively as a member as well as a leader on technical teams.

The **Mechanical Engineering Technology program** also has the following **Program Educational Objectives**, which are what we want students to have achieved within five years of graduation:

1. Program graduates will secure and maintain employment in appropriate mechanical engineering technology positions industry-wide and perform all functions assigned to a mechanical engineering technologist.
2. Graduates will apply their knowledge of mathematics, science, engineering technology, and computing to identify, analyze, and solve problems pertaining to design, development, and implementation of mechanical systems.
3. Graduates will exhibit a desire for life-long learning through higher education, technical training, teaching, membership in professional societies, and other developmental activities and will achieve positions of increased responsibility through these activities.
4. Graduates will demonstrate high levels of oral and written communication skills, critical thinking, responsibility and ethical behavior, teamwork and appreciation for diversity, and leadership in their careers.

2. Curriculum development (Lists, brief narrative if appropriate)

Significant improvements to the MET curriculum are in process and will go into effect for the 2021-2022 academic year and catalog. These are explained in detail below.

Current curriculum (just ET/ENGR)	New curriculum
ET 101 Intro. to Engineering Technology (2 cr)	ET 101 Intro to ET (2 cr)
ET 105 Fundamentals of Drawing (3 cr)	ET 105 Intro to Drawing (3cr)
ET 116 Basic Manufacturing Processes (3 cr)	ENGR 216 Manu. Processes (3 cr)
ET 118 Fluids I (3 cr)	ET 218 Fluid Mechanics (3 cr)
ET 130 Basic Electrical Circuits I (3 cr)	ENGR 308 Electronics (3 cr)
ET 142 Intro. to Programming (3 cr)	ENGR 204 Programming (2 cr)

ET 206 Chemistry for Engineers (5 cr)	ET 206 Chemistry for Eng. (4 cr)
ET 207 Parametric Modeling (3 cr)	ET 207 Parametric Modeling (2 cr)
ENGR 213 Statics (3 cr)	ENGR 213 Statics (3 cr)
ENGR 214 Dynamics (3 cr)	ENGR 214 Dynamics (3 cr)
ENGR 220 Mechanics of Materials (3 cr)	ENGR 220 Mech of Materials (3 cr)
ET 221 Machine Components (3 cr)	ENGR 420 Machine Components (3 cr)
ENGR 301 Materials Science (2 cr)	ENGR 201 Engineering materials (2 cr)
ET 308 Finite Element Analysis (3 cr)	ENGR 408 Finite Element Anal. (3 cr)
ET 318 Fluids II (3 cr)	ET 318 Fluid Power Systems (3 cr)
ENGR 324 Engineering Thermodynamics (3 cr)	ENGR 324 Eng. Thermodynamics (3 cr)
ET 322 Design Problems (3 cr)	ET 405 Applied Thermodynamics (3 cr)
ET 324 Motors & Drives (3 cr)	ET 324 Motors and Drives (3 cr)
ET 360 Project Management (3 cr)	ET 360 Project Management (3 cr)
ET 390 Mechatronics (4 cr)	ET 390 Mechatronics (3 cr)
ET 400/ET 410 Internship/Capstone Project (3 cr)	ET 400/ET 410 Internship/Capstone (3 cr)
ET/ENGR Elective (3 cr)	ET 316 Additive Manufacturing (3 cr)
	ENGR 221 Mech of Materials lab (1 cr)
	ET 380 Ind. Automation Controls (3 cr)
	2 ENGR or ET electives*

*ET 385 Robotics, ENGR 409 Advanced FEA, ET 362 Industrial Quantitative Decision Making, ENGR 422 Machine Comp Design II, ET 326 Fundamentals of Machining

To accommodate more ET/ENGR credits, only one semester of Physics (Phy 202 or 104) will be required. PHY 103/201 was previously required, but most of the content is redundant with ENGR 213 and ENGR 214 and, hence, it was eliminated. With a re-alignment of credits for ET 206 and ET 207, the new curriculum only adds one credit hour to the BS. The new curriculum better aligns the level of each course, has MET students take broader circuits and programming classes more aligned with ME, adds an additional lab class for more applied experiences, and lets students specialize by selecting from a list of electives.

3. Connections to other programs (Lists, brief narrative if appropriate)

The MET and ME programs are highly connected in course content, the primary difference being that the MET program remains more hands-on and applied, while the ME program requires two additional math courses, Multivariate Calculus and Differential Equations, beyond Calc 1 and 2 and supports a more theoretical understanding of concepts. There are also differences in ET and ENGR courses (ET 105, ET 360, and an ET 400 Internship, for example) for ET students that prepare them for a different type of engineering employment after graduation. Both curricula were designed with the level of rigor required by the accrediting agency, ABET.

4. Number of courses offered (Overall number provided in materials. Chairs: short commentary if appropriate. Provide a sub-grouping of various modalities by percentage. For example, what percentage of your program is available online, hybrid, etc.?

The new MET curriculum includes 29 total courses with either ET or ENGR pre-fixes. Five of these are upper level electives and the rest are required courses. Some courses are also required of Electrical ET, Environmental ET, and Mechanical Engineering.

The modality breakdown is:
In-person: 22 required courses and 5 electives (93.1%)
On-line or hybrid: 2 required courses (ENGR 216 and ET 400) (roughly 6.9%)

In the future, more courses may be offered on-line or hybrid to meet program needs. The rapid move to on-line instruction during Covid has demonstrated that we can teach more on-line than we believed we could. However, in-person instruction is by far the best mode for labs and highly quantitative classes.

5. Diversity of students, faculty, and curriculum (Overall number provided in materials. Chairs: short commentary if appropriate; provide examples from curriculum if appropriate.)

Mechanical Engineering and Mechanical Engineering Technology have five faculty members, one tenured, three tenure track, and one lecturer: Jagadeep Thota (associate), Md Riaz Ahmed (assistant), Md Rasedul Islam (assistant), Jian Zhang (assistant), and Nabila Rubaiya (lecturer). While this is too small a number to be statistically significant, we can say that 1/5 of the faculty is female and all represent a non-Caucasian ethnicity (south Asia or Asia).

Between 2017 and 2020, 33 students graduated from the program. Their demographics are presented in Table 1 below. Not surprisingly for engineering, most identified as male. Over one-half came to UWGB as transfer students with Associate degrees from technical colleges, primarily NWTC, with whom we have transfer agreements. This is reflected in the number of graduates 25 years of age or older.

Table 1: Diversity of Mech ET Graduates 2017-2020

N=33 graduates	number	percent
Gender Identity		
Male	28	84.8
Female	5	15.2
First generation college graduate	9	27.3
Age range		
20-24	11	33.3
25 and older	22	66.7

6. Gen Ed, FYS/GPS, CCIHS (Lists)
   The Engineering Technology and Engineering programs contribute the following general education courses:

   WE: ENGR 213, ET 360, ET 400, ET 410
   FYS/GPS: ENGR 198 (not required)
   Capstone: ET 400 or ET 410
   Natural Sciences: ET 206 Chemistry for Engineers
   Sustainability: ENGR 202 Intro to Smart Cities
   Humanities: ENGR 260 Intro to Engineering Ethics

   CCIHS: ET 101, ET 105, ET 220, ET 207

7. Program support and staffing (Chairs: History, trends, and future needs. Depending on program, could be connected to accreditation.)

   As stated above, the Mech ET and ME programs are staffed by five full-time positions (Associate Professor Jagadeep Thota and Assistant Professors Riaz Ahmed, Jian Zhang, and Rasedul Islam and lecturer, Nabila Rubaiya), with additional needs being met by three ad-hoc instructors (Scott Guttschow, Nic Zeitler, and Wes Schroeder) and two UWGB faculty from NAS (Mike McIntire, Mandeep Bakshi). The full-time lecturer is specific to the Sheboygan campus and the program has been approved to hire a tenure track faculty to support ME on the Sheboygan campus.

   The RSE budgetary chair and the Engineering discipline chair have been the same person, Patricia Terry, since RSE split from NAS. This fall, Jagadeep Thota was elected to a three-year term as Engineering discipline chair (2020-2023) and Patricia Terry was re-elected RSE Budgetary chair through August 2024.

   Program support is provided by two program assistants shared between Human Biology, NAS and RSE, although one of these primarily serves NAS and Human Biology. Additional support for RSE comes from the program assistant in the dean's office.

8. Cost per credit hour (TBD)

   All Engineering and Engineering Technology declared majors pay a differential tuition of $700 per semester for those within the plateau (12-18 credits). Those taking fewer than 12 credit hours, pay an additional 58.33 per credit hour. This differential tuition applies to all credit hours, not just ET or ENGR ones, and students are required to declare their major prior to registering for the spring semester of their freshman year. If they wish to apply for ET or ENGR scholarships, they must declare the major in their first semester at UW-Green Bay (freshman or transfer students). The Engineering and Engineering Technology programs rely on this tuition revenue to cover faculty and equipment costs.

External

1. Outreach: student/faculty partnerships, collaborations, participation with organizations or individually (Lists)

   The Engineering/ET programs have an advisory board that includes over forty organizations, who may participate in one or multiple disciplines. The Mechanical ET program advisory board includes organizations such as NWTC, FVTC, Georgia-Pacific, Foth, NEW ERA, Paper Converting Machine Corporation, Pioneer Metal Finishing, MCL Industries, GB Decking, Einstein Project, in addition to Ashwaubenon, Howard-Suamico, Green Bay, and Pulaski Public School Districts.

2. Contributions to regional infrastructure (Lists)

   UWGB Mechanical Engineering faculty sit on advisory boards for NTWC's Mechanical Design Technology and Manufacturing Engineering Technology Associate's programs and engineering faculty also serve on the NEW ERA advisory board and the NEW Manufacturing board.

3. Scholarly activity of faculty (Lists that are not all-inclusive; maybe seek to highlight the different areas/types of activity)

   Mechanical Engineering and Mechanical Engineering Technology

   Jagadeep Thota: experimental and computational solid mechanics, material characterization

   Thota J, Trabia MB, O'Toole BJ (2019) *Computational prediction of the damage to a military vehicle composite armor due to ballistic impact*. ASME International Mechanical Engineering Congress and Exposition (ASME IMECE).

   Nasif AO, **Mahfuz MU**, **Thota J** (2017) *Noise modeling of nanomechanical communication systems*. 17th IEEE International Conference on Nanotechnology (IEEE-NANO): pp. 49-52.

   Nasif AO, **Mahfuz MU**, **Thota J** (2017) *A framework of nanomechanical communication systems based on state transitions*. 10th EAI International Conference on Bio-inspired Information and Communications Technologies (BICT): pp. 106-109.

   Computational prediction of the damage to a military vehicle composite armor due to ballistic impact. ASME International Mechanical Engineering Congress and Exposition (ASME IMECE), Salt Lake City, UT. November 11-14, 2019.

Riaz Ahmed: Energy harvesting and bio-inspired mechanical cochlea

Indaleeb, M. M., Banerjee, S., Ahmed, H., Saadatzi, M., & **Ahmed, R.** (2019). Deaf band based engineered Dirac cone in a periodic acoustic metamaterial: A numerical and experimental study. *Physical Review B*, *99*(2), 024311.

Ahmed, H., **Ahmed, R.**, Indaleeb, M. M., & Banerjee, S. (2018). Multifunction acoustic modulation by a multi-mode acoustic metamaterial architecture. *Journal of Physics Communications*, *2*(11), 115001.

Mir, F., Saadatzi, M., **Ahmed, R. U.**, & Banerjee, S. (2018). Acoustoelastic MetaWall noise barriers for industrial application with simultaneous energy harvesting capability. *Applied Acoustics*, *139*, 282-292.

Ahmed, R., & Banerjee, S. (2018). An articulated predictive model for fluid-free artificial basilar membrane as broadband frequency sensor. *Mechanical Systems and Signal Processing*, *100*, 766-781.

Jian Zhang: Energy systems and storage

Xu Ping, Fubin Yang, Hongguang Zhang, Wujie Zhang, **Jian Zhang**, Gege Song, Chongyao Wang, Baofeng Yao, Yuting We, 2020 "Prediction and optimization of power output of single screw expander in organic Rankine cycle (ORC) for diesel engine waste heat recovery", Applied Thermal Engineering, Accepted.

Rebecca Neves, **Jian Zhang**, and Heejin Cho, 2020 "Techno-Economic Analysis of Geothermal System in Residential Building in Memphis, TN", Journal of Building Engineering, 27, 100993.

Jian Zhang, Heejin Cho, Pedro J. Mago, Hongguang Zhang, and Fubin Yang, 2019, "Multi-objective Design Optimization for Distributed Energy Systems with Energy Storage," Journal of Thermal Science, 6, 1221-1235.

Jian Zhang, Heejin Cho, Hongguang Zhang, Fubin Yang, 2018, "Multi-objective Design Optimization for Distributed Energy Systems with Energy Storage: A Case Study", ASME 2018 12th International Conference on Energy Sustainability, June 24-28, 2018, Lake Buena Vista, FL, U.S.

Patents:

Number: ZL201510036787.1: Regenerative organic Rankine cycle system and its control method for engine waste heat recovery

Number: ZL201220551509.1: A lubricating system for a power machinery

Number: ZL201210350995.5: Lubricating system and control method for single screw expander

Number: ZL201120397965.0: Waste heat recovery system for internal combustion engine based on organic Rankine cycle

Rasedul Islam: Bio-medical engineering, robotics, and control

Islam MR, Brahimi B, Ahmed T, Assad-Uz-Zaman M, Rahman MH (2020) "Chapter 9 - Exoskeletons in upper limb rehabilitation: A review to find key challenges to improve

functionality". In: BOUBAKER, O. (ed.) Control Theory in Biomedical Engineering. Academic Press, Elsevier June 2020.

Islam, M.R., Assad-Uz-Zaman, M., Al Zubayer Swapnil, A. *et al.* An ergonomic shoulder for robot-aided rehabilitation with hybrid control. *Microsyst Technol* (2020).

Islam, M. R., Rahman, Mehrani., & Rahman, M.H. (2020) "A Novel Exoskeleton with Fractional Sliding Mode Control for Upper Limb Rehabilitation" Robotica, Cambridge University press.

Islam, M. **R.,** Assad-Uz-Zaman, M. & Rahman, M.H. (2020) "Design and Control of an Ergonomic Robotic shoulder for Wearable exoskeleton robot for Rehabilitation" Int. J. Dynam. Control, Vol:8, Issue:1, Page 312–325.

Assad Uz Zaman, M., **Islam, M.R**., & Rahman, M.H. et al. (2020), "Robot sensor system for supervised rehabilitation with real-time feedback". Multimedia Tools Appl 79, 26643–26660.

Student Success

1. High-impact practices and individualized-learning opportunities (Some data provided; lists and/or brief narrative)

All Engineering Technology students are required to complete a capstone high impact experience with the majority of students completing an internship with an appropriate company or industry. In the past three years Mechanical ET students have worked for companies such as Fincantieri Marine, EMT International, Samuel Pressure Vessel Group, and Pierce Manufacturing. Students who are not employable off campus (foreign students with specific student visas) complete an individualized instruction opportunity with a faculty member, usually undergraduate research, but to date all students have completed internships. Students are not limited to one experience. They may complete an internship and engage in undergraduate research. Students also complete a number of classes with a lab component, including Machine Components and Mechatronics, where they learn to use and apply the modern tools of engineering design and measurement.

UW-Green Bay has an active Engineering club that schedule industry tours and invites guest speakers from industry and professional organizations, such as the American Society for Mechanical Engineers and the Wisconsin Society of Professional Engineers to visit and discuss their companies. Engineering students may also participate in UWGB's Rocketry club to design, build, and launch rockets.

2. Retention (TBD. Note: if program-level data is not provided, maybe list some things your program does that you believe aid in retention.)

The Mechanical ET program achieves high retention rates by keeping class sizes under roughly 30-40 students (although this is changing), providing state-of-the-art lab experiences, offering individualized advising, and very high quality instruction (I can offer the course evaluations of any of my faculty to demonstrate their excellence).

Mission Relevant

1. Relevance to mission (Narrative or lists as appropriate)

Mechanical Engineering Technology

Starting with the **UW-Green Bay select mission**, the **Program Educational Objectives** (PEOs), listed in this document under program goals, align well with, "provides a problem focused educational experience that promotes critical thinking and student success." PEO 1 reflects promoting student success because securing and maintaining employment in the field of study after graduating is a clear measure of success and PEO 3 states that students will achieve positions of increased responsibility, which also comes from success in the workplace. PEOs 2 and 4

specifically speak to a "problem focused education" and "promotes critical thinking." The nature of the engineering technology degree is to be hands-on, applied, and problem focused. "The culture and vision of the University reflect a deep commitment to diversity and inclusion," is met by PEO 4, which emphasizes appreciation for diversity and teamwork. Ethical behavior also supports inclusivity. "Community based partnerships" are one foundation of UW-Green Bay's engineering programs and this is reflected in PEO 1, maintaining employment, and PEO 3, membership in professional societies. The "commitment to educational opportunity at all levels" is supported by PEO 3's goal that graduates will exhibit a desire for life-long learning. The mission states a commitment to a University that promotes access, career success, cross discipline collaboration, cultural enrichment, economic development, entrepreneurship, and environmental sustainability is included in all four PEOs. PEO 1 supports the economic development of the northeast Wisconsin region, which is the industrial base of the state of Wisconsin. The need for graduates with engineering degrees is very high and supplying these is critical to the state's economic future. PEO 2 speaks to entrepreneurship because solutions to modern day problems rely on novel, cross discipline approaches. PEOs 3 and 4 address career success directly through "positions of greater responsibility" and "leadership" and indirectly through "high levels of oral and written communication skills, responsibility and ethical behavior, teamwork and appreciation for diversity" because career success requires all of these skills.

The **core mission** of the university reflects not just the student experience, but also how the entire university operates within itself and in the greater community. PEOs met by the core mission are outlined in the table below. Those that are operational in nature and are the responsibility of administration, faculty, and staff are noted.

UW-Green Bay Core Mission	Mechanical ET Program Educational Outcome
1. Offer associate and baccalaureate degree level and selected graduate programs within the context of its approved select mission'	Program graduates will secure and maintain employment in appropriate mechanical engineering technology positions industry-wide and perform all functions assigned to a mechanical engineering technologist. (PEO 1)
2. Offer an environment that emphasizes teaching excellence and meets the educational and personal needs of students through effective teaching, academic advising, counseling, and through university-sponsored cultural, recreational, and extracurricular programs.	This is the responsibility of the university administration, faculty, and staff.
3. Offer a core of liberal studies that support university degrees in the arts, letters, and sciences, as well as for specialized professional/technical degrees at the associate and baccalaureate level.	Program graduates will secure and maintain employment in appropriate mechanical engineering technology positions industry-wide and perform all functions assigned to a mechanical engineering technologist. (PEO 1)

	Graduates will apply their knowledge of mathematics, science, engineering technology, and computing to identify, analyze, and solve problems pertaining to design, development, and implementation of mechanical systems. (PEO 2) Graduates will demonstrate high levels of oral and written communication skills, critical thinking, responsibility and ethical behavior, teamwork and appreciation for diversity, and leadership in their careers. (PEO 4)
4. Offer a program of pre-professional curricular offerings consistent with the university's mission.	Program graduates will secure and maintain employment in appropriate mechanical engineering technology positions industry-wide and perform all functions assigned to a mechanical engineering technologist. (PEO 1)
5. Expect scholarly activity, including research, scholarship and creative endeavor, that supports its programs at the associate and baccalaureate degree level, its selected graduate programs, and its approved mission statement.	This applies to faculty, but undergraduate research opportunities are also created by faculty scholarship. Graduates will apply their knowledge of mathematics, science, engineering technology, and computing to identify, analyze, and solve problems pertaining to design, development, and implementation of mechanical systems. (PEO 2)
6. Promote the integration of the extension function, assist University of Wisconsin-Extension in meeting its responsibility for statewide coordination, and encourage faculty and staff participation in outreach activity.	This applies to faculty, staff, and curriculum.
7. Participate in inter-institutional relationships in order to maximize educational opportunity for the people of the state effectively and efficiently through the sharing of resources.	This does not apply to PEOs, but is met via transfer agreements with regional technical colleges (NWTC, FVTC, LTC, NTC, MATC) and College Credit in High School opportunities.
8. Serve the needs of women, minority, disadvantaged, disabled, and nontraditional students and seek racial and ethnic diversification of the student body and the professional faculty and staff.	This is a mission for operation of the university. The Resch School of Engineering is meeting this via a diverse faculty and scholarship opportunities to support students.

9. Support activities designed to promote the economic development of the state.	Program graduates will secure and maintain employment in appropriate mechanical engineering technology positions industry-wide and perform all functions assigned to a mechanical engineering technologist. (PEO 1)

2. Cultural enrichment (Narrative or lists as appropriate)

   Engineering/Engineering Technology does not directly provide cultural enrichment, but this discipline has a diverse faculty that includes three female faculty (including the Budgetary chair) to help promote inclusion and cultural diversity by example.

3. Access (Does the program have any agreements with other institutions? For example, a transfer agreement with a technical college.)

   The **Mechanical Engineering Technology** program has articulation agreements for several technical associate degree programs with regional technical colleges as listed below:

   Northeast Wisconsin Technical College
   - Mechanical Design Technology
   - Manufacturing Engineering Technology

   Fox Valley Technical College
   - Mechanical Design Technology

   Lakeshore Technical College
   - Mechanical Design Technology

   Moraine Park Technical College
   - Mechanical Design Technology

   Madison Area Technical College
   - Mechanical Design Technology

   North Central Technical College
   - Mechanical Design Technology

   UW-Green Bay's Engineering Technology programs also participate in CCIHS with Bayport HS (Howard-Suamico ISD), Preble HS (Green Bay ISD), Pulaski HS (Pulaski ISD), and West DePere HS (DePere ISD).