



February 23, 2021

Maryland Higher Education Commission
Dr. James D. Fielder, Jr.
Secretary of Higher Education
6 North Liberty Street
Baltimore, MD 21201

Dear Secretary Fielder:

Garrett College is proposing an Associate of Science degree in Engineering Transfer that will be implemented within existing institutional library resources, physical facilities, infrastructure and instructional equipment. On behalf of Garrett College, I affirm the college will ensure there are adequate library resources, physical facilities, infrastructure and instructional equipment to meet the program's needs.

Please do not hesitate to contact me at (301) 387-3043 or at qing.yuan@garrettcollege.edu if you have any questions regarding Garrett College's commitment to providing the resources necessary to launch and maintain this proposed program.

Sincerely,

Qing Yuan, Ed.D.
Dean of Academic Affairs/Chief Academic Officer



Office Use Only: PP#

Cover Sheet for In-State Institutions

New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Garrett College
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Each action below requires a separate proposal and cover sheet.

- | | |
|---|---|
| <input checked="" type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program |
| <input type="radio"/> New Area of Concentration | <input type="radio"/> Substantial Change to an Area of Concentration |
| <input type="radio"/> New Degree Level Approval | <input type="radio"/> Substantial Change to a Certificate Program |
| <input type="radio"/> New Stand-Alone Certificate | <input type="radio"/> Cooperative Degree Program |
| <input type="radio"/> Off Campus Program | <input type="radio"/> Offer Program at Regional Higher Education Center |

Payment <input type="radio"/> Yes	Payment <input type="radio"/> R*STARS	Payment \$850.00	Date
Submitted: <input type="radio"/> No	Type: <input type="radio"/> Check	Amount:	Submitted: 2/23/2021

Department Proposing Program	Academic Affairs		
Degree Level and Degree Type	Associate of Science		
Title of Proposed Program	Engineering Transfer		
Total Number of Credits	61		
Suggested Codes	HEGIS:		CIP:
Program Modality	<input checked="" type="radio"/> On-campus		<input type="radio"/> Distance Education (<i>fully online</i>)
Program Resources	<input checked="" type="radio"/> Using Existing Resources		<input type="radio"/> Requiring New Resources
Projected Implementation Date	<input checked="" type="radio"/> Fall	<input type="radio"/> Spring	<input type="radio"/> Summer Year: 2021
Provide Link to Most Recent Academic Catalog	URL: https://www.garrettcollege.edu/images/academics/credit/catalogs/course-catalog.pdf		

Preferred Contact for this Proposal	Name:	Fred Stemple
	Title:	Academic Director of STEM
	Phone:	(301) 387-3125
	Email:	fred.stemple@garrettcollege

President/Chief Executive	Type Name:	Dr. Richard Midcap
	Signature:	<i>Richard Midcap</i> Date: 2-22-21
	Date of Approval/Endorsement by Governing Board: 2-16-21	

Revised 4/2020

New Academic Program Proposal for
Associate of Science in Engineering Transfer

Garrett College, McHenry, MD

A. Centrality to Institutional Mission Statement and Planning Priorities:

1. Provide a description of the program, including each area of concentration (if applicable), and how it related to the institution's approved mission.

The mission statement of Garrett College includes the following commitments:

- To provide accessible, quality education in a supportive environment to a diverse student population through associate degrees and certificate programs.
- We are committed to the ongoing development of engaging, innovative, and sustainable curricula, programs, and initiatives that are responsive to a changing world.

The Associate of Science in Engineering Transfer program offers Garrett College students an opportunity to earn the first two years of a four-year engineering degree, while completing general education requirements and getting an exposure to general introductory engineering curriculum. The curriculum is built around a strong basic core of mathematics, the sciences including chemistry and physics, computer technology and opportunities to experience variety of forms of engineering. Students will gain knowledge of engineering theory through engineering courses and application of theory to real world problems. The program will provide students hands-on experience in the design, development, implementation, and management of projects and in the communication and presentation of their ideas and project plans. Graduates may choose to continue learning at a four-year institution or begin in their chosen career. Frostburg State University (FSU) is Garrett College's biggest transfer partner, making this potential program partnership particularly attractive to Garrett's students.

2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms it is an institutional priority.

The addition of an Engineering Transfer, Associate of Science (A.S.) degree aligns with the College's Strategic Goal 1: "Provide Garrett College students, credit and noncredit, with innovative, relevant curriculum delivered by dedicated faculty/instructors who remain current in their field of study" (Garrett College FY2021-FY2025 Strategic Plan, 2020).

The A.S. in Engineering Transfer program offers innovative and relevant curriculum in engineering from dedicated STEM and engineering faculty. In addition to the completion of two years of a four-year degree in engineering, the availability of this program will offer many other advantages for students including:

- reducing costs by allowing Garrett County high school graduates to take advantage of the Garrett County Scholarship Program;
- decreasing student debt by decreasing the amount of student loans required to complete a degree;
- and increasing the likelihood of persistence to degree completion by simplifying the logistics of attending college, which opens up more employment opportunities for graduates in Garrett County, as well as regionally and nationally.

3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation. (Additional related information is required in section L.)

The proposed program will operate with existing resources within the College. Students will take courses in Garrett College's (GC) existing general education curriculum, and the proposed set of core courses for the degree will be taught by GC faculty. A STEM Center endowment will provide the funds to support new and existing Engineering programs' yearly equipment needs. Existing equipment was purchased with STEM Center funds while consumable supplies are purchased through semester student fees. These current resources and funding sources will sustain the new program for the first five years of program implementation.

4. Provide a description of the institution's commitment to:

a. Ongoing administrative, financial, and technical support of the proposed program.

The Engineering Transfer program has the committed support of the Garrett College Board of Trustees and Administration to ensure the engineering program remains a part of the STEM curriculum offered at Garrett. The facilities, equipment and supplies purchased for our current engineering program (Electrical Engineering) will also be used by students enrolled in the Engineering Transfer A.S. degree. As mentioned, existing equipment was purchased with STEM Center funds, and new equipment to grow the Engineering Transfer program will be financially supported by the Daniel Offutt III STEM Center Fund's yearly budget. Technical support for the program will be maintained by Engineering faculty, Academic Affairs, Information Technology, Facilities, and other GC departments.

b. Continuation of the program for a period of time sufficient to allow enrolled students to complete the program.

The continuation of Engineering Transfer Associate of Science will allow new students to complete the program. Courses included in the program will be offered each academic year, allowing students to complete the degree in two years or during their individual timelines.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following: a) the need for advancement and evolution of knowledge; b) Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

Garrett College is located in Garrett County in western Maryland. Garrett County is a community needing advanced skill knowledge provided by this engineering program. Life is defined as rural in the county with the characteristics of a rural population. Garrett County is home to numerous manufacturing businesses utilizing engineering skills, but has few nearby institutions providing this type of training and curriculum. Over 86% of the county's high school seniors graduate each year, and the availability of an Engineering Transfer, Associate of Science degree will expand educational opportunities and choices for Garrett County residents and students. The A.S. in Engineering Transfer program, where designed for transfer to four-year institutions in surrounding regions to complete an Engineering bachelor degree, also provides opportunities to address critical traditional and non-traditional curriculum and skill training needs in the region. The Associate degree can be utilized for employment in the workforce or for advancement purposes.

Several factors support the local and regional (as well as statewide) need for an Engineering Transfer, Associate of Science degree at Garrett College:

1. **Benefits to Garrett County Residents** – The A.S. in Engineering Transfer program is beneficial for traditional and non-traditional resident students with future benefits to local business and industry. No other college in the western Maryland region offers an Engineering Transfer program. Due to its location in the westernmost county of Maryland, Garrett College's proposed Engineering Transfer, Associate of Science degree will not compete with any of the other Engineering Transfer programs at the other Maryland community colleges. Allegany College of Maryland, the closest community college to Garrett County in Cumberland MD, does not offer an A.S. in Engineering Transfer.

The below MD community colleges offer an Engineering Transfer program:

- Anne Arundel Community College
- Baltimore City Community College
- College of Southern Maryland
- Community College of Baltimore County
- Harford Community College
- Howard Community College

The above programs are in or around the Baltimore-Washington, D.C. metropolitan area, which is over three hours away from Garrett College. Moreover, the availability of the proposed Engineering Transfer, Associate of Science degree at Garrett will provide Garrett County and surrounding regions students with the opportunity to locally pursue a career in engineering fields.

2. **Benefits to Students in the Region** – The Engineering Transfer degree program will attract local students who otherwise would need to leave western MD for this type of curriculum. With no other college in the western Maryland region offering an Engineering Transfer program, Garrett County Public School graduates seeking a transfer degree in Engineering can utilize County funds to attend Garrett College. The Garrett County-funded scholarship program provides up to 64 credits of free tuition for Garrett County high school graduates who attend Garrett College and the A.S. in Engineering Transfer degree. The existence of the Garrett County Scholarship Program provides a strong incentive for most Garrett County high school graduates to pursue higher education at Garrett College to include the A.S. in Engineering Transfer.

Due to Garrett College's geographic location (bordering both West Virginia and Pennsylvania), the proposed Engineering Transfer, Associate of Science degree will not only benefit students in Garrett County, but students coming from surrounding counties in West Virginia and Pennsylvania due to the proximity of this program.

3. **Benefit to Other Maryland Students** – In addition to proximity and funding opportunities for local Marylanders, Garrett College is one of only two community colleges in Maryland that has residence halls. If approved, it would be the only community college in the state with an Engineering Transfer, Associate of Science degree west of the Baltimore-Washington, D.C. area. At present, 38% of the student population is made up of out-of-county and out-of-state students, most coming from the Baltimore-Washington, D.C. area. Most of these students will either return home or transfer to a four-year institution upon graduation. The availability of an Engineering Transfer, Associate of Science degree at Garrett potentially will be attractive to many of these students given that many four-year schools with bachelor's degrees in Engineering in Maryland are located around the Baltimore-Washington D.C. area.

Related to societal needs, Garrett County is an economically disadvantaged area and 92% of Garrett College students receive financial aid. Garrett College would benefit from expanded educational opportunities as the region's institution of higher education. Garrett College, with residential living opportunities, attracts minority and educationally disadvantaged students from the Baltimore-Washington, D.C. area as well as those from our region. These students would also benefit from added educational opportunities and choice.

2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education.

Although the A.S. in Engineering Transfer is designed for transfer students to complete a four-year degree, the program coursework could benefit residents and students already in the workforce or entering the workforce. The courses in the program teach sought after skills applicable to current business and industry positions in and out of the region.

The Engineering Transfer proposal aligns with the 2017-2021 Maryland State Plan for Postsecondary Education (Maryland Higher Education Commission). With respect to the Access Goal, this program addresses Strategy 3 to "expand efforts to cultivate student readiness, financial literacy and financial aid for individuals outside traditional K-12 channels" and Success Goal and Strategy 5 to "ensure that statutes, regulations, policies and practices that support students and encourage their success are designed to serve the respective needs of both traditional and non-traditional students." Although this program will attract traditional students transferring to four-year institutions it will also benefit non-traditional students already in the workforce looking to enhance their technical skills. Offering this program to non-traditional students for skills or advancement will also link with the Innovation Goal in Strategy 8 to "develop new partnerships between colleges and businesses to support workforce development and improve workforce readiness."

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:

The expanding number of four-year colleges and universities either offering or considering offering engineering degrees, including neighboring Frostburg State University (FSU), attests to the attractiveness and marketability of the major. According to EngineerJobs.com, there are over 9,400 job openings in the various engineering fields in the state of Maryland alone. In addition to the demand for four-year degrees in engineering, there is a demand for a work force with engineering skills for industry and manufacturing provided by an A.S. degree in engineering. The region's combined labor force totals 125,574 according to the Western Maryland Consortium (WMC) Workforce Innovation and Opportunity Act (WIOA) Strategic Plan (March 2019) report. WMC confirms that the major employers in Western Maryland are in healthcare, trade, transportation & distribution, financial support, education, and advanced manufacturing trades. Of the 20 major Garrett County employers listed in the WIOA Strategic Plan, six directly relate to manufacturing and industrial skills and account for over 800 jobs.

1. Describe potential industry or industries, employment opportunities, and expected level of entry (ex: mid-level management) for graduates of the proposed program.

According to the Maryland Workforce Exchange (MWE), managed by the Maryland Department of Labor, there are 1,749 job openings for Northrup Grumman located in Rocket Center, WV (40 miles from Garrett College). Many of these jobs are in the areas of manufacturing and require skills that are aligned with the proposed A.S. degree. Graduates of the Engineering Transfer program and four-year degree programs should expect to enter

the workforce in mid-level to highly skilled and credentialed positions.

Garrett College, close in proximity (within four hours' drive time) to several major technology hubs in three surrounding states – Pennsylvania, West Virginia and Virginia – as well as Washington, D.C., is within access to over 40,000 job openings.

2. Present data and analysis projecting market demand and the availability of openings in the job market to be served by the new program.

According to the Maryland Occupational Projections - 2014-2024 - Workforce Information and Performance (Maryland Department of Labor), employment of Architecture and Engineering occupations is projected to grow almost 14 percent from 2014 to 2024, faster than the national average (see Architecture and Engineering occupations data below in Table 1).

According to the U.S. Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections, employment of architecture and engineering occupations is projected to grow over 7 percent from 2016 to 2026, about as fast as the average for all occupations. About 194,300 new jobs are projected to be added. Most of the projected job growth in this group is in the engineer occupations, as their services will be in demand in various areas such as rebuilding of infrastructure, renewable energy, oil and gas extraction, and robotics. The median annual wage for architecture and engineering occupations was \$77,900 in May 2016. Employment in engineering fields was estimated to be 2,499,050. The median annual wages for all occupations in this group was higher than the median annual wage for all occupations in the economy, which was \$37,040.

Statewide, the Maryland Occupation Projections, 2016-2026 (Maryland Department of Labor) indicates over a 17.9% growth in Production Managers, 9.5% growth in Engineers, 9.6% growth in Engineering technicians, 8.9% growth in Operating Engineers and Construction, 5.5% growth in Industrial Machinery Mechanics, and 20.9% growth in Assemblers and Fabricators.

3. Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable data on the educational and training needs in the anticipated number of vacancies expected over the next five years.

Table 1 summarizes the Maryland job growth information, discussed in the sections above (Maryland Department of Labor, Licensing & Regulation, Maryland Occupational Projections 2014 – 2024).

Table 1: Architecture and Engineering Occupations - Maryland Occupational Projections 2014 - 2024

Occ Code	Occupational Title	Employment			Change	
		2014	2024	Change	Replacement	Total
17-0000	Architecture and Engineering Occupations	57,319	65,236	7,917	13,264	21,186
17-1000	Architects, Surveyors, and Cartographers	4,053	4,838	785	933	1,718
17-1011	Architects, Except Landscape and Naval	2,432	2,942	510	577	1,087
17-1012	Landscape Architects	466	573	107	111	218
17-1021	Cartographers and Photogrammetrists	406	478	72	86	158
17-1022	Surveyors	749	845	96	159	255
17-2000	Engineers	40,915	46,975	6,060	10,008	16,068
17-2011	Aerospace Engineers	2,921	3,381	460	679	1,139
17-2021	Agricultural Engineers	32	39	7	8	15
17-2031	Biomedical Engineers	668	845	177	170	347
17-2041	Chemical Engineers	723	797	74	168	242
17-2051	Civil Engineers	6,635	8,170	1,535	1,613	3,148
17-2061	Computer Hardware Engineers	4,054	4,839	785	874	1,659
17-2071	Electrical Engineers	4,408	4,982	574	962	1,536
17-2072	Electronics Engineers, Except Computer	5,192	5,638	446	1,133	1,579
17-2081	Environmental Engineers	1,165	1,436	271	284	555
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	643	750	107	188	295
17-2112	Industrial Engineers	2,635	2,924	289	770	1,059
17-2121	Marine Engineers and Naval Architects	566	666	100	144	244
17-2131	Materials Engineers	740	803	63	233	296
17-2141	Mechanical Engineers	5,066	5,811	745	1,729	2,474
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	10	12	2	3	5
17-2161	Nuclear Engineers	589	635	46	150	196
17-2171	Petroleum Engineers	50	52	2	13	15
17-2199	Engineers, All Other	4,818	5,195	377	887	1,264
17-3000	Drafters, Engineering Technicians, and Mapping Technicians	12,351	13,423	1,072	2,323	3,400
17-3011	Architectural and Civil Drafters	1,089	1,110	21	145	166
17-3012	Electrical and Electronics Drafters	448	498	50	60	110
17-3013	Mechanical Drafters	1,118	1,176	58	149	207
17-3019	Drafters, All Other	282	321	39	38	77
17-3021	Aerospace Engineering and Operations Technicians	431	508	77	89	166
17-3022	Civil Engineering Technicians	1,005	1,008	3	208	211
17-3023	Electrical and Electronics Engineering Technicians	3,878	4,296	418	803	1,221
17-3024	Electro-Mechanical Technicians	256	273	17	53	70
17-3025	Environmental Engineering Technicians	357	427	70	74	144
17-3026	Industrial Engineering Technicians	645	640	-5	134	134
17-3027	Mechanical Engineering Technicians	523	614	91	108	199
17-3029	Engineering Technicians, Except Drafters, All Other	1,668	1,782	114	345	459
17-3031	Surveying and Mapping Technicians	651	770	119	117	236
Total		171,957	195,708	23,751		
% Change 13.81%						

Table 2 summarizes the national job growth information (U.S. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook).

Table 2: Employment by major occupational group, 2016 and projected 2026 (Numbers in 1000's)

2016 National Employment Matrix title and code	Employment		Change, 2016-26		Median annual wage, 2016 ⁽¹⁾
	2016	2026	Number	Percent	
Total, all occupations	156,063.8	167,582.3	11,518.6	7.4	\$37,040
Architecture and engineering occupations	2,601.0	2,795.4	194.3	7.5	\$77,900

Footnotes:

⁽¹⁾ Data are from the Occupational Employment Statistics program, U.S. Bureau of Labor Statistics. Wage data cover non-farm wage and salary workers and do not cover the self-employed, owners and partners in unincorporated firms, or household workers.

Source: Employment Projections program, U.S. Bureau of Labor Statistics (10)

4. Provide data showing the current and projected supply of prospective graduates.

The proposed A.S. program will attract more students within this prevailing market, which will result in more high school graduates choosing to remain in this county for potential job opportunities. Garrett County leaders recognize the critical role of sustainable growth and development (Garrett County Economic Development Strategic Plan, 2011) by their commitment to increase the number of well-paying jobs and business growth in the county for graduates. Garrett County is home to several large employers and leaders in the Manufacturing/Machining Industry needing engineering skills (see the list below).

<u>Employer</u>	<u>Employees</u>	<u>Product and Service</u>
Beitzel Corporation	502	Metal fabrication
ClosetMaid Corporation	232	Storage Manufacturing
Phenix Technologies	115	High voltage manufacturer
Garrett Container Systems	105	Aluminum Containers
Fechheimer	75	Uniform Manufacturer
Simon Pearce	51	Hand-blown glass Manufacturer

D. Reasonableness of Program Duplication

1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

Similar Engineering Transfer, Associate of Science degree programs do not exist at other nearby Maryland community colleges. Being centrally located in Garrett County, having this program at Garrett College would lessen the students' travel time. In addition, students graduating from Garrett County high schools can take advantage of the Garrett County Scholarship Program if they attend Garrett College. Having the ability to take advantage of this scholarship will lessen the educational financial burden on the students and their families.

West Virginia University offers both Bachelor's degree and Master's degree programs in various Engineering fields. Frostburg State University (FSU) also offers a B.S. in Engineering, with an option of a concentration in electrical engineering. Garrett College presently has an articulation agreement with FSU for GC's A.S.E. in Electrical Engineering and will seek to articulate the proposed Associate in Science in Engineering Transfer program with FSU and other regional four-year institutions.

2. Provide justification for the proposed program.

The curriculum is built around a strong basic core of mathematics, the sciences including chemistry and physics, computer technology and opportunities to experience variety of forms of engineering. Students will gain knowledge of engineering theory through engineering courses and application of theory to real world problems. The program will provide students hands-on experience in the design, development, implementation, and management of projects and in the communication and presentation of their ideas and project plans. Graduates may choose to continue learning at a four-year institution or begin in their chosen career. A two-year Engineering Transfer, Associate of Science degree program will provide Western Maryland students with an engineering education option that will give them the foundation not only for success in any four-year engineering program, but also to entry-level engineering positions.

Moreover, the proposed program will benefit other stakeholders that Garrett College have existing relationships with, including the Garrett County Public Schools in general and the Project Lead the Way - Pre-Engineering (PLTW) students in particular. Project Lead the Way is a national program that assists high school students in developing a strong background in science and engineering. Also, the proposed program is expected to expose the Garrett County College & Me participants and Garrett County's own G-FORCE FTC Robotics team to STEM fields and Engineering (G-FORCE, is a community-based FIRST Tech Challenge Robotics Team, sponsored by GEARS, Inc.).

Students in Garrett County, MD are introduced to STEM, robotics and robotics teams in all levels of the public-school system providing opportunities for participation until graduation. The College and Me program with Garrett College focuses on STEM exposure for all County elementary school students. The hope is that these students already exposed to STEM, robotics and engineering will move onto Garrett College and the general Engineering Transfer Program to continue these interests. The Garrett County Scholarship Program for tuition assistance will allure more County students who may otherwise take their STEM and engineering interests elsewhere.

E. Relevance to High Demand-Programs at Historically Black Institutions (HBIs)

Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBIs.

No impact on HBIs is anticipated from this new program.

F. Relevance to the identity of Historically Black Institutions (HBIs):

Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs.

No impact on HBIs is anticipated from the proposed program.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):**1. Describe how the proposed program was established, and also describe the faculty who will oversee the program.**

The proposed program was established by a committee of constituents at the College seeking to provide a general engineering transfer program in our STEM Department to meet interested students' needs and increase current engineering enrollment. STEM's Engineering faculty member currently leads our A.S.E. Electrical Engineering program and will be the lead for the proposed Engineering Transfer program. The College has recently hired a STEM faculty member with a Ph.D. in Engineering to lead Chemistry and Physics and will also assist with the Engineering Transfer program (See section I-1 for faculty listing).

2. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

The Engineering Transfer A.S. degree curriculum is designed to provide theory along with practical, hands-on instruction enabling students to develop the knowledge, skills, and abilities to transfer to a four-year engineering program or to enter the workforce with skills and knowledge in engineering.

The following Program Learning Outcomes will be achieved through completion of the program:

- Students will demonstrate the ability to function effectively as a member of a team while engaged in an engineering project, including assuming the role of the team leader.
- Students will demonstrate the ability to communicate effectively both orally and in writing, when presenting their ideas and engineering projects.
- Students will demonstrate an understanding of, and the ability to engage in the various steps in the engineering project development process including: problem specification, design, modeling, simulation (using computer-aided engineering), fabrication, testing, and redesign.
- Students will demonstrate an understanding of, and the ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

3. Explain how the institution will:**a. Provide for assessment of student achievement of learning outcomes in the program;**

According to Garrett College's Academic Plan (2018), each program develops an assessment plan that outlines strategies for assessing specific student learning outcomes and explains how the outcomes will be assessed. Academic Program Directors provide a timeline and document results annually. The annual program assessment allows faculty and program directors to develop an action plan to strengthen the program further (See Table 3 below for the report for assessing learning outcomes in the Engineering Transfer program).

Table 3: Garrett College Student Learning Assessment - Program Learning Outcomes Annual Assessment Report

Degree Program:	The Engineering Transfer A.S. degree
Area of Concentration: <i>(if applicable)</i>	
Assessment Cycle:	FY2021
Submission Date:	
Submitted by:	Paul Rached

Program Learning Outcomes and Assessment Methods:

Program Learning Outcomes		Assessment Methods
#	<i>Please list your Program Learning Outcomes as they appear in the catalog. Outcomes that align with general education (institutional) learning goals should be marked with an asterisk.</i>	<i>For each learning outcome, identify the assessment methods used to measure student achievement. You should list at least two different methods of assessment for each outcome. (Expand rows as needed.)</i>
1	Students will demonstrate the ability to function effectively as a member of a team while engaged in an engineering project, including assuming the role of the team leader.	<ul style="list-style-type: none"> ENR 100 Final Project, Final Report and Group Presentation ENR 211 Comprehensive Final Lab ENR221 Engineering Statics Final Exam ENR230 Sci & Engineering Computations Final Lab& Final Report ENR 241 Comprehensive Final Lab ENR 241 Final Report <p>Objectives - 70% of students will score a 75% or better</p> <ul style="list-style-type: none"> Test: HEIghten® Critical Thinking Assessment (Proficient or Advanced) Test: HEIghten® Written Communication Assessment (Proficient or Advanced) Test: HEIghten® Quantitative Literacy Assessment (Proficient or Advanced)
2	Students will demonstrate the ability to communicate effectively both orally and in writing, when presenting their ideas and engineering projects.	<ul style="list-style-type: none"> ENR 100 Final Project, Final Report and Group Presentation ENR 210 Comprehensive Final Exam ENR 211 Comprehensive Final Lab ENR230 Sci & Engineering Computations Final Lab& Final Report ENR 240 Comprehensive Final Exam ENR 241 Comprehensive Final Lab ENR 241 Final Report ENR250 Engineering Dynamics Final Exam <p>Objectives - 70% of students will score a 75% or better</p> <ul style="list-style-type: none"> Test: HEIghten® Critical Thinking Assessment (Proficient or Advanced) Test: HEIghten® Written Communication Assessment (Proficient or Advanced) Test: HEIghten® Quantitative Literacy Assessment (Proficient or Advanced)
3	Students will demonstrate an understanding of, and the ability to engage in the various steps in the	<ul style="list-style-type: none"> ENR 100 Final Project, Final Report and Group Presentation

	engineering project development process including: problem specification, design, modeling, simulation (using computer-aided engineering), fabrication, testing, and redesign.	<ul style="list-style-type: none"> • ENR 210 Comprehensive Final Exam • ENR 211 Comprehensive Final Lab • ENR221 Engineering Statics Final Exam • ENR230 Sci & Engineering Computations Final Lab & Final Report • ENR 240 Comprehensive Final Exam • ENR 241 Comprehensive Final Lab • ENR 241 Final Report <p>Objectives - 70% of students will score a 75% or better</p> <ul style="list-style-type: none"> • <i>Test: HEIghten® Critical Thinking Assessment (Proficient or Advanced)</i> • <i>Test: HEIghten® Written Communication Assessment (Proficient or Advanced)</i> • <i>Test: HEIghten® Quantitative Literacy Assessment (Proficient or Advanced)</i>
4	Students will demonstrate an understanding of, and the ability to use techniques, skills, and modern engineering tools necessary for engineering practice.	<ul style="list-style-type: none"> • ENR 100 Final Project, Final Report and Group Presentation • ENR 210 Comprehensive Final Exam • ENR 211 Comprehensive Final Lab • ENR221 Engineering Statics Final Exam • ENR230 Sci & Engineering Computations Final Lab & Final Report • ENR 240 Comprehensive Final Exam • ENR 241 Comprehensive Final Lab • ENR 241 Final Report • ENR250 Engineering Dynamics Final Exam <p>Objectives - 70% of students will score a 75% or better</p> <ul style="list-style-type: none"> • <i>Test: HEIghten® Critical Thinking Assessment (Proficient or Advanced)</i> • <i>Test: HEIghten® Written Communication Assessment (Proficient or Advanced)</i> • <i>Test: HEIghten® Quantitative Literacy Assessment (Proficient or Advanced)</i>

b. Document student achievement of learning outcomes in the program.

Annual program assessment and course-embedded assessment are used to document student achievement in programs. In the annual program assessment, student achievement is documented in a College assessment report. Garrett College requires new programs to undergo a full program assessment after the first three years, and then the program enters into the College's program review cycle of every five years. The Office of Institutional Research and Assessment provides program review support and a template for program review (See Table 3 above for the report for assessing student achievement in the Engineering Transfer program).

4. Provide a list of courses with title, semester credit hours, and course descriptions, along with a description of program requirements.

The Engineering Transfer, Associate of Science degree program is designed to provide theory along with

practical, hands-on instruction which will enable students to develop the knowledge and skills required in order to transfer to a four-year institution or to enter the workforce in an engineering career.

a. Requirements: Engineering Transfer, Associate of Science degree (62 credits)

Total Credit Hours: A minimum of 62 credits.

FYE101 First Year Experience 1

GER REQUIRED CREDITS: 32

English Composition:

ENG101 Comp I--Expository Writing 3

-- Min. C grade required.

Arts and Humanities:

COM101 Intro to Communication 3

GER Humanities Course ⁶ 3

Social and Behavioral Sciences:

Two GER Soc & Behavioral Science Courses
from two different disciplines ⁶ 6

Science:

CHE101 General Chemistry I..... 4*

PHY111 Gen Physics I (Calc-based) 5*

Mathematics:

MAT190 Calculus I 4*

Interdisciplinary/Emerging Issues:

CIS170 Computer Science Programming I 4*

MAJOR COURSES & ELECTIVES: 29

ENR100 Intro to Engineering Design 3*

PHY112 Gen Physics II (Calc-based) 5*

MAT191 Calculus II 4*

MAT192 Calculus III 4*

MAT281 Differential Equations 4*

ELECTIVES (see list below): 9 credits

ENR210 Basic Circuit Theory 3*

ENR211 Electrical & Digital Circuit Lab 2*

ENR221 Engineering Statics..... 3*

ENR230 Sci & Engineering Computations 3*

ENR240 Digital Logic Design 3*

ENR241 Digital Logic Design Lab 1*

ENR250 Engineering Dynamics	3*
CHE102 General Chemistry II.....	4*

TOTAL CREDIT HOURS REQUIRED: 62

***ADDITIONAL GRADUATION REQUIREMENTS:**

Must achieve a grade of “C” or better in all computer science, engineering, mathematics, and natural/physical science courses.

Degree/Graduation Requirements

Degree Requirements

5. Discuss how general education requirements will be met, if applicable.

As part of Garrett College’s A.S. degrees, students in the Engineering Transfer program will be required to complete 32 general education credits. The table below is an example sequence for degree completion.

a. Example Sequence:

FALL

FYE101 First Year Experience	1
CHE101 General Chemistry I.....	4
ENR100 Intro to Engineering Design.....	3
ENG101 Comp I—Expository Writing.....	3
MAT190 Calculus I	<u>4</u>
TOTAL	15

SPRING

COM101 Intro to Communication.....	3
MAT191 Calculus II.....	4
ENR Elective.....	3
GER Arts & Humanities Course ⁶	3
GER Social and Behavioral Science Course ⁶	<u>3</u>
TOTAL	16

FALL

CIS170 Computer Science Programming I.....	4
PHY111 Gen Physics I (Calc-based).....	5
ENR Elective.....	3
MAT192 Calculus III.....	<u>4</u>
TOTAL	16

SPRING

GER Social and Behavioral Science Course ⁶	3
PHY112 Gen Physics II (Calc-based)	5
ENR Elective.....	3
MAT281 Differential Equations.....	<u>4</u>
TOTAL	15

b. Course Descriptions

CHE101 General Chemistry I - 4 credits

A course intended for students whose curricula require a year or more of chemistry. The general theories and principles of chemistry are introduced and emphasized in the lecture and reinforced in the laboratory work. Some topics included are atomic and molecular structure, periodicity, chemical bonding and structure, stoichiometry, kinetic molecular theory, solution chemistry, and redox reactions.

CIS170 Computer Science Programming I - 4 credits

This course introduces the fundamental concepts of high-level programming using an object-oriented programming language. Topics covered include principles of software development cycle, input/output, data types and variables, operators and expressions, program selection, repetition, functions, arrays, strings, introduction of algorithms, objects and classes, as well as debugging, and documentation.

COM101 Introduction to Communication - 3 credits

This course is designed to introduce the student to the fundamentals of human communication and public address. Students will study the basic elements of the communication process; basic techniques of interpersonal communication; elements of speech composition and speech presentation skills applied to informative and persuasive speaking.

ENG101 Composition I-Expository Writing - 3 credits

A course in writing expository and research-based essays that emphasize the development of clear theses through various rhetorical modes including description, narration, comparison-contrast, analogy, definition, analysis, classification, argumentation, and persuasion. As writer voices develop, students use print and non-print sources to help support theses, leading to writing adhering to MLA guidelines.

ENR100 Intro to Engineering Design - 3 credits

This is the introductory course for engineering students, providing an overview of engineering design process based on a hands-on experience with a client-centered engineering design project. Students will be working in teams and the completed design project will satisfy functional or operational requirements. Topics required for the course will be drawn from various disciplines, such as mechanics, fluid mechanics, energy concepts, thermodynamics, electrical circuits, and chemistry. Students will also use CAD software and other computer applications, such as word processors, spreadsheets, etc.

ENR221 Engineering Statics - 3 credits (New course)

This is a foundational course for engineering students that focuses on the study of the equilibrium of particles and rigid bodies subject to general force systems in two and three dimensions. Forces, moments, couples, equilibrium, trusses, frames and machines, friction, centroids, moments of inertia, and internal forces will be addressed. The use of vector and scalar methods for problem solving will also be covered.

ENR230 Scientific & Engineering Computation - 3 credits

This course covers elementary numerical analysis and application of mathematical theory to identify roots of equations; develop systems of linear equations; Gaussian elimination, matrix diagonalization and inversion; utilize iterative methods; interpolate and curve fit; numerical integration and differential equations. Example problems in the context of engineering applications are solved using a variety of software tools, including structured programming and high-level computational packages such as MATLAB.

ENR250 Engineering Dynamics - 3 credits (New course)

This is a foundational course for engineering students that focuses on the study of kinematics and kinetics of particles and rigid bodies. The topics covered include forces, mass, acceleration, work, energy, impulse, momentum, impact, and problem-solving using vector and scalar methods.

MAT190 Calculus I - 4 credits

An exploration of the concepts, techniques, and applications of single-variable differential calculus, along with an introduction to integral calculus. The general topics are functions, limits, the derivative, differential equations, applications of the derivative, and the integral. An emphasis is placed on achieving a conceptual understanding of the material from multiple perspectives: verbal, graphical, numerical, and symbolic.

MAT191 Calculus II - 4 credits

An exploration of the techniques and applications of integral calculus, along with an introduction to function approximation with Taylor polynomials and power series. The general topics are numerical integration, applications of the integral, symbolic anti-differentiation techniques, function approximation, improper integrals, and infinite series. An emphasis is placed on achieving a conceptual understanding of the material from multiple perspectives: verbal, graphical, numerical, and symbolic.

MAT192 Calculus III - 4 credits

An exploration of the concepts, techniques, and applications of multivariable calculus. The general topics are the geometry of space, vector functions, functions of several variables, partial derivatives, optimization, multiple integrals, and vector calculus. An emphasis is placed on achieving a conceptual understanding the material from multiple perspectives: verbal, graphical, numerical, and symbolic.

MAT281 Differential Equations - 4 credits

An introduction to differential equations with an emphasis on applications. Topics include analytic techniques for solving first order and higher-order linear differential equations, numerical and qualitative techniques for solving nonlinear differential equations, the use of differential equations to model real-world phenomena, and the interpretation of solutions.

PHY111 General Physics I (*Calculus Based*) - 5 credits

A calculus-based introduction to general physics concepts primarily for those students who plan to enroll in science, technology, and engineering programs. The course topics will include mechanics, kinematics, dynamics, energy, and momentum. Lab and lecture are taught consecutively.

PHY112 General Physics II (*Calculus Based*) - 5 credits

A continuation of calculus-based physics concepts primarily for those students who plan to enroll in science and engineering programs. The course topics focus on the theoretical and experimental foundation of physics including, but not limited to, electricity and magnetism, thermodynamics, Coulomb's law, and Gauss' law. Lab and lecture are taught consecutively.

6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

There are no specialized accreditations or graduate certification requirements for this program.

7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

Garrett College will not contract with another institution or non-collegiate organization for this program.

8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services, financial aid resources, and costs and payment policies.

All program requirements, to include curriculum and course requirements, are posted in the Garrett College catalog available online at <https://www.garrettcollege.edu/images/academics/credit/catalogs/course-catalog.pdf>. Additionally, each academic program has its own webpage to provide additional information, resources, and program director contact information. Garrett College's website will have multiple links directing students to the proposed program's page. The Garrett College homepage includes links to Financial Aid, Tuition & Fees, Advising & Student Support Services, Library & Learning Commons, Blackboard (the College's learning management system), and Distance Learning. Instructors follow a standard syllabus template that outlines course requirements, materials, and specific technology requirements. Syllabi also include faculty contact information such as email, office phone, and office hours, as well as information about student support such as tutoring, library, and disability services.

9. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.

The Garrett College Office of Marketing and Public Relations is responsible for creating, producing, and providing final approval for all promotional and marketing materials. The Office of Marketing and Public Relations works closely with Admissions, Creative Services, and Academic Affairs, ensuring that all promotional materials accurately and clearly represent the program on all media platforms. All materials that represent the program and services provided by the college must meet the standards defined in the established Garrett College Brand Management Guide.

H. Adequacy of Articulation

If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.

Garrett College (GC) already has articulation agreements in place with Frostburg State University and West Virginia University with Garrett's A.S.E. in Electrical Engineering program. Garrett College will meet with Frostburg State University and West Virginia University to discuss articulation of GC's proposed two-year degree. Garrett College also plans to connect with other potential transfer partners who have four-year engineering programs, including other Maryland and independent universities, to establish articulation agreements.

Existing engineering transfer programs in Maryland are guided by course-by-course evaluation and transfer of credit, with narrowly described articulation agreements between two- and four-year colleges. The result is that students tailor the beginning of their education to one four-year school. The A.S. in Engineering Transfer, by providing a clear transfer pathway to multiple schools, will help offer students more choice in transfer.

A.S. students must meet all admission requirements of engineering programs to which they apply to be eligible for admission and transfer. Students who successfully transfer with an A.S. should have a reasonable expectation of graduating with a B.S. in the same timeframe as native students entering their junior year in the same program. A.S. students who are admitted into four-year programs must meet all four-year graduation requirements.

I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11):

1. Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faculty member will teach in this program.

Garrett College has a strong faculty team consisting of both full-time and part-time faculty members. All Engineering Transfer, Associate of Science degree program courses will be taught primarily by a full-time faculty member (See chart below).

Faculty Teaching MAJOR COURSES

<u>Faculty Member & Credentials</u>	<u>Status</u>	<u>Courses</u>
Paul Rached, M.S. in Electrical Engineering	Full-time	ENR100 Intro to Engineering Design 3
		ENR230 Sci & Engineering Computations3
		ENR221 Engineering Statics.....3
		ENR222 Mechanics of Materials 3
		ENR250 Engineering Dynamics.....3
Finley Richmond, Ph.D. in Biological & Chemical Engineering	Full-time	PHY112 Gen Physics II (Calc-based).....5
Dr. Jeff Reitz, Ph.D. in Mathematics	Full-time	MAT191 Calculus II 4
		MAT192 Calculus III 4
		MAT281 Differential Equations 4
Tim Foster, M.S. in Mathematics	Full-time	MAT191 Calculus II 4
		MAT192 Calculus III 4
		MAT281 Differential Equations 4

2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:

- 1. Pedagogy that meets the needs of the students;**
- 2. The learning management system;**
- 3. Evidenced-based best practice for distance education, if distance education is offered.**

The Coordinator of Distance Learning and Instructional Design at Garrett College helps provide faculty professional development through numerous pedagogical training sessions each semester. Workshop topics include: facilitating classroom discussions, implementing critical thinking activities in classroom teaching, online course design to include the use of the Blackboard LMS, and adopting and adapting Open Educational Resources. The Coordinator of Distance Learning and Academic Directors implement an internal review process for all online courses using online industry standards and rubrics for best online teaching practices.

J. Adequacy of Library Resources (as outlined in COMAR 13B.02.03.12):

The Library at Garrett College offers extensive resources for academic research with a large collection that includes books, periodicals, electronic journals, newspapers, audiobooks, videos, and DVDs. In addition to student computer workstations with Microsoft Office and Adobe products and Internet access for academic projects, the GC library offers extensive services to students including, but not limited to the following: multiple electronic databases including ProQuest, Science in Context, and Access Science; on-campus access and 24-hour remote access; in-person and virtual reference services; online research and citation guides; and information literacy instruction and workshops provided both in-person and virtually. It is anticipated that the above-listed resources will be sufficient for the A.S. in Engineering Transfer program. This will be assessed annually to determine what additional reference or library resources may be required.

K. Adequacy of Physical Facilities, Infrastructure, and Instructional Equipment (as outlined in COMAR 13B.02.03.13):

1. Provide an assurance that physical facilities, infrastructure, and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for students in the technologies and sciences.

Garrett College opened a new STEM Center in 2018 which is a more than adequate science and technology facility for student learning and faculty instruction. Since Garrett College already offers an Associate of Science in Engineering (A.S.E.) program, the proposed A.S. program will not have a major impact on the use of existing facilities and equipment. Most of the required core courses are currently offered as courses, and no additional facilities or equipment will be required to add A.S. in Engineering Transfer program students.

2. Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:

1. An institutional electronic mailing system

All students, faculty, and staff at Garrett College receive access to the electronic mailing system via their respective accounts. Students can access their Laker Mail on the same day they register for classes. They continue to have access to Laker Mail throughout their time as an enrolled (full- or part-time) student at Garrett College. Faculty and staff gain email access once the hiring process is complete.

All students, faculty, and staff receive a unique email address and may access their accounts remotely via Outlook Web Access.

2. Support for distance education

Garrett College utilizes Blackboard as the Learning Management System (LMS) for online and hybrid courses. In the LMS, students are able to review course content, syllabi, assignments, and grades throughout the semester. GC employs a Coordinator of Distance Learning to provide support to both students and faculty in the online learning environment. Faculty are trained on the LMS and as online instructors by the Coordinator of Distance Learning using Quality Matters (QM) guiding principles for online instruction.

L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14):

1. Complete Table 1: Resources and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each resource category. If resources have been or will be allocated to support the proposed program, briefly discuss the sources of those funds.

Table 1 summarizes resource estimates in each of the following categories over the first five years of program implementation. There will be no reallocated funds over the five-year period. Tuition and Fee Revenue includes payments directly attributable to students new to the institution enrolled in this program each year. The total revenue was estimated based on the cost to in-county students at the rate of \$142.00 per credit hour plus a \$25.00 registration fee per semester. All cost is based on the current rate of tuition and fees. The full-time cost estimate is based on fifteen credits per semester and thirty credits per year, while part-time estimate is based on six credits per semester and twelve credits per year. Resources from the aforementioned Daniel Offutt III STEM Center Fund now being established will be budgeted in the future. No other sources of financial resources are presently available.

Table 1. Resources

Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	N/A	N/A	N/A	N/A	N/A
2. Tuition/Fee Revenue (c + g below)	\$22,492.00	\$32,876.00	\$41,496.00	\$51,870.00	\$60,490.00
a. Number of F/T Students	4	6	8	10	12
b. Annual Tuition/Fee Rate	\$4,310.00	\$4,310.00	\$4,310.00	\$4,310.00	\$4,310.00
c. Total F/T Revenue (a x b)	\$17,240.00	\$25,860.00	\$34,480.00	\$43,100.00	\$51,720.00
d. Number of P/T Students	3	4	4	5	5
e. Credit Hour Rate	\$142	\$142	\$142	\$142	\$142
f. Annual Credit Hour Rate	\$1,754	\$1,754	\$1,754	\$1,754	\$1,754
g. Total P/T Revenue (d x f)	\$5,252	\$7,016	\$7,016	\$8,770	\$8,770
3. Grants, Contracts & Other External Sources	N/A	N/A	N/A	N/A	N/A
4. Other Sources	N/A	N/A	N/A	N/A	N/A
TOTAL (Add 1 – 4)	\$22,492.00	\$32,876.00	\$41,496.00	\$51,870.00	\$60,490.00

2. Complete Table 2: Program Expenditures and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each expenditure category.

Table 2 summarizes expenditure estimates for the following categories over the first 5 years of the program.

Garrett College does not intend to hire any new full-time or part-time faculty for this program at this time given that all the courses will be taught by current faculty. No new administrative staff (#FTE, Salary, and Benefits) nor new support staff (#FTE, Salary, and Benefits) are needed to implement the program. Existing classroom equipment will be sufficient for this program. No additional library expenditures are expected. No new spaces are needed nor renovated spaces need to be created. In summary, additional expenditures are not expected based on articulations with ASE EE, which share courses and support.

Table 2. Expenditures

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Overload & Adjunct Pay	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
a. FT Overload x 9 credits	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
b. Adjunct Pay x 6 credits	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
c. Total Benefits	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
2. Admin Staff (b + c below)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
a. # FTE	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
b. Total Salary	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
c. Total Benefits	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
3. Support Staff (b + c below)	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
a. # FTE	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
b. Total Salary	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
c. Total Benefits	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
4. Equipment	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00	\$ 2,000.00
5. Library	\$ 200.00	\$ 200.00	\$ 200.00	\$ 200.00	\$ 200.00
6. New or Renovated Space	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
7. Other Expenses	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00
TOTAL (Add 1 – 7)	\$ 2,200.00	\$ 2,200.00	\$ 2,200.00	\$ 2,200.00	\$ 2,200.00

M. Adequacy of Provisions for Program Evaluation**1. Discuss procedures for evaluating courses, faculty, and student learning outcomes.**

All of Garrett College's instructional programs and faculty are evaluated annually based on the results from regular assessment of student learning outcomes for programs and student course and supervisor evaluations for faculty. In addition to college-wide general education student learning outcomes, which focus on information literacy, communication skills, critical analysis and reasoning, scientific literacy and quantitative reasoning, information management skills, and cultural and global perspective, the College has established a set of program-specific learning outcomes for every degree and certificate program. Based on the fact that the A.S. in Engineering Transfer is designed to prepare students for transfer to a four-year engineering program, the program-specific learning outcomes that have been identified are designed to assess the extent to which students have mastered the foundational skills in mathematics, physics, engineering basics, and problem-solving ability needed to succeed in a four-year engineering program, particularly those focusing on aeronautical, mechanical, civil, mining, or industrial engineering.

2. Explain how the institution will evaluate the proposed program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

Garrett College has a formal program review process whereby each of its academic and career programs are formally reviewed on a regular cycle. A new program is reviewed after the first three years, and then, if successful, falls into the College's regular five-year academic program review cycle. In addition to academic, retention, and completion program data, the review considers the assessment of student learning outcomes, faculty performance, and all costs related to the program.

N. Consistency with the State's Minority Student Achievement Goals (as outlined in COMAR 13B.02.03.05): Discuss how the proposed program addresses minority student access and success, and the institution's cultural diversity goals and initiatives.

In 2018, Garrett College (GC) added a new concluding sentence to its mission statement that "the College respects and cares for students as individuals and as members of diverse groups, and supports their aspirations for a better life." GC recruits students in urban areas with large minority populations; approximately 25% of the current student body is comprised of minority students. The 2019 Garrett College Cultural Diversity Plan reinforces the College's strategic plan to "identify obstacles to student success" and to "provide actively engaged and relevant college experience for students," by developing a "broader range of coursework" (GC Diversity Plan Goal 4, Strategy 1). The Engineering Transfer A.S. program enrollment is open to all students.

O. Relationship to Low Productivity Programs Identified by the Commission:

If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources, and general operating expenses) may be redistributed to this program.

This program is not related to an identified low productivity program.

P. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22):

1. Provide affirmation and any appropriate evidence that the institution is eligible to provide distance education.

Due to the technical aspects of the classes proposed in this program, it will not be offered completely online, but some individual courses within the general education requirements of the degree will be available online for students. Garrett College received approval to offer online the General Studies A.A. program on June 15, 2005. For the proposed Engineering Transfer A.S., students will be able to complete the general education portion of the degree online if they choose to do so.

2. Provide assurance and any appropriate evidence that the institution complies with C-RAC guidelines, particularly as it related to the proposed program.

C-RAC is a collective of seven regional organizations responsible for the accreditation of approximately 3,000 American colleges and universities, which includes the Middle States Commission on Higher Education (MSCHE). Garrett College is accredited through MSCHE and follows the appropriate guidelines to adhere to national standards and integrity for distance education programs. As stated in Section P.1., Garrett College received approval from MSCHE to offer an online General Studies A.A. degree on June 15, 2005, which allows students to take non-technical, general education courses online. Additionally, Garrett College is a current member of the National Council for State Authorization Reciprocity Agreement (NC-SARA), which “establishes comparable national standards” for online and distance education in the postsecondary setting (NC-SARA).

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