



Office Use Only: PP#

**Cover Sheet for In-State Institutions  
New Program or Substantial Modification to Existing Program**

Institution Submitting Proposal	Prince George's Community College
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*Each action below requires a separate proposal and cover sheet.*

- |   |   |
|---|---|
| <input type="radio"/> New Academic Program        | <input checked="" 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 checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS # 0347471	Payment	\$250.00	Date	12/15/22
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check # 0347471	Amount:		Submitted:	

Department Proposing Program	Technology, Engineering, and Construction	
Degree Level and Degree Type	Associate of Science	
Title of Proposed Program	Engineering	
Total Number of Credits	62	
Suggested Codes	HEGIS: 4940.01	CIP: 52.0201
Program Modality	<input checked="" type="radio"/> On-campus <input type="radio"/> Distance Education (fully online) <input type="radio"/> Both	
Program Resources	<input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources	
Projected Implementation Date <small>(must be 60 days from proposal submission as per COMAR 13B.02.03.03)</small>	<input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer            Year: 2023	
Provide Link to Most Recent Academic Catalog	URL: <a href="https://catalog.pgcc.edu/">https://catalog.pgcc.edu/</a>	

Preferred Contact for this Proposal	Name:	Dr. Clayton Railey
	Title:	EVP and Provost of Teaching Learning, and Student Success
	Phone:	(301) 546-0406
	Email:	raileyca@pgcc.edu

President/Chief Executive	Type Name:	Dr. Falecia Williams
	Signature:	<i>Falecia Williams</i> Date: 12/15/2022
	Date of Approval/Endorsement by Governing Board:	12/08/2022

Revised 1/2021



PRINCE GEORGE'S  
COMMUNITY COLLEGE

pgcc.edu

James Fielder, Ph.D., Secretary  
Maryland Higher Education Commission  
6 N. Liberty Street  
Baltimore, MD 21201

January 17, 2023

Dear Dr. Fielder,

Prince George's Community College incorporated substantial modifications to the **Engineering, A.S.** degree program (HEGIS 4940.01; CIP 14.0101). The changes, which will improve students' abilities to transfer to a 4-year institution, are as follows:

- Creation of 4 tracks of electives: Computer Engineering, Electrical Engineering, Electronic Engineering, and Mechanical Engineering;
- Addition of **ENT-1730 AC and DC Digital Circuits**, **ENT-2740 Digital Circuits**, and **ENT-2810 CPU Architecture** as program electives in the Computer Engineering Track;
- Addition of **ENT-1600 Introduction to CAD with AutoCAD** as a program elective in the Electrical Engineering track;
- Addition of **ENT-1730 DC and AC Circuit Analysis** as a program elective in the Electronic Engineering track;
- These modifications also changed the total program credits from 65 to 62-64.

Prince George's Community College's Curriculum Committee approved all revisions. The additional MHEC paperwork is also included. A payment of two hundred fifty dollars (\$250) has been forwarded to cover the substantial modifications to a program fee. Feel free to contact me with any questions.

Respectfully,

Dr. Clayton Railey  
EVP and Provost of Teaching, Learning, and Student Success  
Prince George's Community College  
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Largo, MD 20774  
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## NEW ACADEMIC DEGREE PROGRAMS, NEW STANDALONE CERTIFICATE PROGRAMS, AND SUBSTANTIAL MODIFICATIONS TEMPLATE

1. Name of Proposed Certificate/Degree Program: Engineering, A.S.
2. Type of Proposal: Substantial Modification

### PART A: Centrality to Institutional and Planning Priorities

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

For more information: [PGCC Mission Statement](#).

Prince George's Community College has incorporated substantial modifications to the Engineering, A.S. degree program, in order to improve students' ability to transfer to a four-year institution. This proposal includes the creation of four tracks of electives: Computer Engineering, Electrical Engineering, Electronic Engineering, and Mechanical Engineering. These tracks are not intended to be separate areas of concentration.

The Engineering, A.S. program provides an introductory foundation for various fields of engineering. The program introduces students to approaches in problem solving within the environment of engineering systems. Students learn to identify, formulate, and solve practical problems using the principles of math, science, and engineering. Students manipulate, analyze, and interpret data from experiments, using quantitative methods as well as various types of technology, and communicate the results in adherence to professional and ethical standards. Courses in this program cover a wide array of the engineering disciplines, including computer engineering, electrical engineering, mechanical engineering, systems analysis and design, technical support, and applications software. This degree prepares students for transfer to four-year institutions and entry-level employment that focuses on computer, electrical, electronic circuits, or mechanical engineering.

Prince George's Community College's mission is to provide high-quality, transformative learning experiences that enrich lives and empower students to earn credentials leading to personal development, professional advancement, and economic prosperity. The college's vision is to serve as the region's premier center for dynamic teaching and learning, strategic partnerships, and community engagement that advances knowledge, economic equity, and lifelong personal development.

The Engineering, A.S. degree directly relates to the College's mission by contributing to the economic equity and cultural vibrancy of our community. The program includes academic offerings for students interested in transferring to four-year degree programs or for professional advancement in pursuing careers in various engineering fields. The program is specifically designed to give students a solid core of required courses that closely match the foundation courses at most four-year engineering degree programs. The inclusion of a General Education core of courses provides thorough preparation in writing, verbal, mathematic, scientific, and critical-thinking skills, which enable students to sample various subject matters and

methodologies to inform their education and career choices. The program is also designed for students to assemble a strong portfolio of work that can be used for transfer or job-seeking purposes, leading to economic prosperity.

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

For more information: [FY2022-2025 Vision, Mission, and Strategic Goals](#) and [Vision 2030 Strategic Imperatives](#)

The proposed Engineering, A.S. degree supports the institution's strategic goals by empowering students to succeed as they transfer to four-year schools and contribute to the economy. Specifically, the program aligns with the **College's Strategic Goal #1: Enhancing equitable access and value for enrolling at PGCC**. PGCC has defined this as maximizing county-wide access to and completion of the College's workforce and transfer programs and degrees. The proposed modified program is an affordable transfer degree option for students, providing required courses that match the transfer needs of students and align with the freshman and sophomore years of our transfer partner four-year schools. Therefore, the courses we teach develop more value because they can be used with transfer schools. Successful transfer is an institutional priority at PGCC.

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.)

All costs of the current Engineering, A.S. program are funded through the annual operating budget for Teaching, Learning, and Student Success. This program will not require any additional expenditures outside those that are offset by increased tuition revenue from projected increased enrollment in the program (details are provided in Part L – Table 1). This modified program can be implemented without the development of new courses, and therefore does not require dedicated financial support. There are no new costs for equipment, instructional supplies, facilities, or faculty and staff.

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

- a. *ongoing administrative, financial, and technical support of the proposed program*

The proposed A.S. in Engineering program has the necessary support at the department, division, and institutional level to operate successfully. The Technology, Engineering and Construction department that will house the degree is well-established at PGCC, with an existing cadre of full-time tenured/tenure-track faculty, as well as qualified adjunct faculty, available to teach the program courses (see the table in Part I for a full listing of faculty), and administrative support personnel. All courses in the program can be taught by existing faculty.

As outlined in Parts K and L, PGCC is confident that the existing administrative and technical supports and physical facilities available to the department and college as a whole are sufficient to ensure the program's viability – the department is not seeking any capital investments or specialized facilities, since current classroom, lab, and office space in the Center for Health Studies will suffice, nor is it seeking any additional administrative positions or technology supports to successfully deliver the

program. At the college level, E-Learning Services and our Technology Help Desk are able to provide comprehensive technical assistance to faculty and students.

- b. *continuation of the program for a period of time sufficient to allow enrolled students to complete the program.*

The program implementation is long-term, with a tenured/tenure-track faculty dedicated to the ongoing course offerings to ensure students are able to complete the degree within a reasonable time frame. The college is committed to student success and will provide all enrolled students with the necessary courses and resources (such as advisors to guide students through the program) so they can graduate on schedule.

## **PART 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 the 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*
- c. *The need to strengthen and expand the capacity of **historically black institutions** to provide high quality and unique educational programs.*

- b) Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

Prince George's Community college is a minority-serving institution. As of 2018, about 60% of Prince George's County residents identify as black and approximately 20% as Hispanic. The Engineering, A.S. program will allow the College to expand the opportunities available to its service population by providing a degree transfer program that provides students with skills that are relevant to the health care field and will transfer to four-year colleges and universities.

- c) The need to strengthen and expand the capacity of historically black institutions to provide high quality and unique educational programs

The Engineering, A.S. program allows Prince George's Community College to expand its capacity as a minority serving institution to offer unique and diverse engineering programming to students to prepare them to successfully transfer to engineering Bachelor's degree programs at historically black institutions in Maryland, including Bowie State University, Morgan State University, and the University of Maryland Eastern Shore.

2. Provide evidence that the perceived need is consistent with the [Maryland State Plan for Postsecondary Education](#).

The 2022 Maryland State Plan for Higher Education outlines three primary goals for the postsecondary community in Maryland:

**Student Access:** Ensure equitable access to affordable and high-quality postsecondary education for all Maryland residents.

**Student Success:** Promote and implement practices and policies that will ensure student success.

**Innovation:** Foster innovation in all aspects of Maryland higher education to improve access and student success.

This program proposal aligns most closely with the **Student Success** goals, and specifically with **Priority 6:** Improve systems that prevent timely completion of an academic program.

As is stated on Page 54 of the Plan, transfer continues to be a challenge in Maryland. PGCC intends to update this program for the specific reason of enhancing successful transfer and eliminating challenges for students. The proposed program is an affordable transfer degree option for students, providing required courses that match the transfer needs of students and align with the freshman and sophomore years of Maryland's public four-year institutions.

Maryland expects to see a large increase in the number of engineering-related positions over the next ten years. The Engineering, A.S. program is designed to allow students from Prince George's County to complete their associate's degree program at PGCC and then transfer to a four-year institution to complete a degree in a variety of engineering fields. This pathway allows for a more seamless transition and makes it easier for students to complete their degree without roadblocks.

After the successful completion of all application steps, each student in this program is given an individual academic degree plan and assigned a college advisor who is specifically trained in the transfer process. This advisor, along with program faculty and staff, will help students navigate through the program and through the transfer process.

Additionally, the curriculum for the program is designed with a multiplicity of educational tools and resources to support the diverse learners at the College. Some courses offered are accessible in both in-person and online formats, which allows ease of access and flexibility to students enrolled in the program. In addition to the online format, some program courses are also offered in a structured remote format (synchronous) to allow greater flexibility to both students and program faculty. Remote tutoring and advising resources are also available for students as an ongoing effort to support and promote program success and timely completion by all students.

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

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

The Engineering, A.S. is the first step in the student's pursuit of a Bachelor's degree in several disciplines within engineering, including computer engineering, electrical engineering, electronic engineering, and mechanical engineering. There are many employment opportunities for these positions. Most entry-level positions require a Bachelor's degree. Hence, offering an Engineering, A.S. degree will increase the chances of our students successfully transferring to obtain a Bachelor's and

possibly further advanced degrees, and subsequently landing a position that will help them thrive in the communities in which they live.

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

According to the Maryland Department of Labor (retrieved January 16, 2023 from <https://www.dllr.state.md.us/lmi/iandoprojshort/>), there are 353,315 engineering-related occupation positions projected for 2023. The Maryland Department of Labor categorizes 37 distinct occupational titles for engineering-related occupations. For the purposes of this proposal, the occupations Electrical and Electronic Engineering Technologists and Technicians (17-3023.00), and Mechanical Engineers (17-2141.00) will be used. The first occupation applies electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, adjust, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions (<https://www.onetonline.org/link/summary/17-3023.00>), while mechanical engineers perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment (<https://www.onetonline.org/link/summary/17-2141.00>).

3. Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable **data** on the **educational and training needs** and the anticipated number of **vacancies** expected over the next 5 years.

According to O\*NET OnLine:

- Most of the jobs in the occupation code for **electrical and electronic engineering technologists and technicians (17-3023.00)** require training in vocational schools, related on-the-job experience, or an associate's degree (specific percentages not listed) (<https://www.onetonline.org/link/summary/17-3023.00>).
- 7% of the jobs in the occupation code for **mechanical Engineers (17-2141.00)** will require an associate's degree, and 83% will require a Bachelor's degree (<https://www.onetonline.org/link/summary/17-2141.00>).

Preparation and training for the employees in these two occupations varies. While electrical and electronic engineering technologists and technicians typically need one or two years of training involving both on-the-job experience and informal training with experienced workers, and may involve a recognized apprenticeship program, mechanical engineers usually need considerably more preparation and training, and often advanced degrees. PGCC's Engineering, A.S. program can be the starting point for each of these occupations.

According to the Bureau of Labor Statistics, national employment in 2021 across the occupations of:

- **Electrical and electronic engineering technologists and technicians (17-3023.00)** measured in number of employees was 105,000. By 2031, this is projected to remain relatively flat and may decrease to 104,600, with 11,100 job openings. In Maryland, 2020 employment was 3,540, and is projected to grow by 1% by 2030, to 3,590 employees, with 330 annual job openings (<https://www.onetonline.org/link/localtrends/17-3023.00?st=MD>).
- **Mechanical Engineers (17-2141.00)** measured in the number of employees was 284,900. By 2031, this is projected to grow by 2% (slower than average), to 291,300, with 17,900 job openings. In

Maryland, 2020 employment was 5,990, and is projected to grow by 3% by 2030, to 6,150, with 370 annual job openings (<https://www.onetonline.org/link/localtrends/17-2141.00?st=MD>).

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

An Engineering Transfer program is currently offered at 10 other community colleges in Maryland. These programs graduated a total of 2,037 students between 2014 and 2021 according to trend data from MHEC (see below). This is well below the projected national and state of Maryland job annual openings for engineering-related positions shown in Part C-3 above.

<b>Supply of Graduates from Comparable Maryland Programs</b>									
<b>Institution</b>	<b>Program Name (CIP)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Anne Arundel CC	Engineering Transfer (14.0101)	36	40	26	25	34	34	33	27
BCCC	Engineering Transfer (14.0101)	4	9	8	5	10	5	3	7
Carroll CC	Engineering Transfer (14.0101)	-	-	-	-	-	1	0	0
Cecil CC	Engineering Transfer (14.0101)	-	-	-	2	17	14	5	3
Coll. Southern MD	Engineering Transfer (14.0101)	39	30	35	52	35	33	36	29
CCBC	Engineering Transfer (14.0101)	9	20	15	24	28	12	18	22
Garrett College	Engineering Transfer (14.0101)	-	-	-	-	-	-	-	-
Harford CC	Engineering Transfer (14.0101)	21	19	26	26	19	17	18	16
Howard CC	Engineering Transfer (14.0101)	19	16	15	23	27	17	26	15
Montgomery Coll.	Engineering Science (14.0101)	77	88	85	113	108	122	106	115
PGCC	Engineering (14.0101)	16	15	15	9	14	18	17	14

Source: [MHEC Trends in Degrees and Certificates by Program 2014-2021](#), published March 2022

## Part 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.

For more information: [Institution Program Inventory](#) and [Degree Trend Data](#)

According to the Maryland Higher Education Commission's (MHEC) Academic Program Inventory, 10 other community college in Maryland offer an associate's degree Engineering that is intended to transfer. All programs offer similar general education core courses.

Anne Arundel Community College (AACC) offers a 63-credit A.S. in Engineering. This program offers similar program requirements to PGCC's program, including introduction to engineering and differential equations. Similar program electives include several chemistry courses, statics, mechanics of materials, dynamics, and circuit training. However, AACC requires calculus and analytic geometry, and also offers electives such as thermodynamics and introduction to discrete structures that PGCC does not offer.

Baltimore City Community College (BCCC) offers a 64-credit A.S. in Engineering. In contrast to PGCC's program, the only engineering courses in this program are engineering graphics, statics, and dynamics. The rest of the program includes similar math and sciences courses to PGCC's program.



Carroll Community College offers a 60-credit A.S. in Engineering. This program includes required courses similar to PGCC, such as the introductory course, statics, mechanics of materials, and dynamics. The program is very similar to PGCC's program in most aspects.

Cecil Community College offers an A.S. in Engineering with four areas of concentration (mechanical/aerospace/civil engineering, chemical engineering, computer engineering, and engineering science). The total number of credits varies by area of concentration (between 63 and 65). Other than the similar introductory and program courses in math and science, the remaining program and elective courses vary by concentration, but are very similar to the courses that PGCC offers, with the exception of thermodynamics.

College of Southern Maryland offers a 60-61 credit A.S. in Engineering that offers many similar courses, including statics, differential equations, mechanics of materials, dynamics, elements of discrete signal analysis, circuit analysis, digital logic circuit design, and into to CAD. The only elective course that appears different than PGCC is thermodynamics.

Community College of Baltimore County (CCBC) offers a 63-65 credit A.S. in Engineering that contains all of the same required and elective courses that are in PGCC's program.

Garrett College offers a 62-credit A.S. in Engineering that contains all of the same required and elective courses that PGCC's program offers.

Harford Community College offers a 63-65 credit A.S. in Engineering that contains all of the same required and elective courses that are in PGCC's program.

Howard Community College is different in that their Engineering program is a 63-65 credit A.A. degree, while all other programs are A.S. degrees. Howard's electives are grouped by field of choice, similar to PGCC's, but are not considered separate areas of concentration. Howard also offers courses in some engineering fields that PGCC does not, including aerospace, biological, civil, and fire protection engineering.

Montgomery College offers an A.S. in Engineering that includes 11 areas of concentration. The total number of credits vary depending on the concentration. Many of the core and elective courses are similar to PGCC's courses, but Montgomery offers many more elective selections.

## 2. Provide **justification** for the proposed program.

The Engineering, A.S. degree will provide the required foundation and preparation for engineering-related fields.

The other community colleges listed in Part D-1 serve populations outside of Prince George's County. Many of the students in our student population would not have the ability or resources to travel that distance to access courses in those engineering programs. Given that Prince George's County is such a diverse and highly populated county, the program serves a significant portion of the population in the state of Maryland and in the DMV region.

There have been no notable issues with competition between other associate degree programs in the area and the current Engineering, A.S. degree. This degree program would continue to meet the needs of the county's large population as the only college offering such a program in the county.

Advantages for students in this program include tuition cost, transferability to a four-year institution, and the availability of state-of-the-art equipment and teaching/learning spaces in the Center for Advanced Technologies.

## Part E: Relevance to High-demand Programs at Historically Black Institutions (HBIs)

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

PGCC does not anticipate that this program will have any impact on the implementation or maintenance of high-demand programs at HBIs.

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

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

Prince George's Community College is considered a majority-minority institution, and the Engineering, A.S. degree is intended for transfer. Historically Black Institutions including Bowie State University, Morgan State University, and the University of Maryland Eastern Shore offer a variety of Bachelor's degree programs in various engineering fields. The Engineering, A.S. program at PGCC will allow students to complete their first 60 credits of study closer to their home and then transfer to an HBI.

## PART 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.

### *Establishment of the Program:*

PGCC has an established process for curriculum development and revision which is driven by the faculty and overseen by the Office of the Executive Vice-President & Provost for Teaching, Learning & Student Success. Program proposals originate with faculty at the department level. After a proposal is approved by the department chair and division dean, it moves through several steps in the approval process including Assessment Committee, Curriculum Committee, General Education Committee (as applicable) and Executive Vice President & Provost. The final step in the approval process for new programs or a substantial modification is from the College's Board of Trustees, before submission to MHEC for approval.

### *Faculty who will oversee the program:*

Technology, Engineering and Construction Department Chair – Dr. Mohammed Ali

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

The objective of the Engineering, A.S. program is to provide an introductory foundation for various fields of engineering. The program introduces students to approaches in problem solving within the environment of engineering systems. Students learn to identify, formulate, and solve practical

problems using the principles of math, science, and engineering. Students manipulate, analyze, and interpret data from experiments, using quantitative methods as well as various types of technology, and communicate the results in adherence to professional and ethical standards. Courses in this program cover a wide array of the engineering disciplines, including computer engineering, electrical engineering, mechanical engineering, systems analysis and design, technical support, and applications software. This degree prepares students for transfer to four-year institutions and entry-level employment that focuses on computer, electrical, electronic circuits, or mechanical engineering.

**Graduates of the Engineering Associate of Science (A.S.) will be able to:**

1. Communicate in written, oral, and graphical channels in both technical and non-technical environments.
2. Apply principles and methods of mathematics, science, engineering, and technology to solve practical problems.
3. Analyze the results of standard engineering tests and measurements.
4. Apply appropriate methods of quantitative methods to numerical data.
5. Utilize various technologies in solving problems.
6. Apply professional and ethical standards in the study of engineering.

Many of the concepts, skills, and technologies in this program are best learned in an in-person, collaborative environment with a hands-on approach. For this reason, the program will be primarily face-to-face. However, eight of the required and elective courses are also offered in an online modality for maximum flexibility.

3. Explain how the institution will:

- a) *provide for assessment of student achievement of learning outcomes in the program*
- b) *document student achievement of learning outcomes in the program*

The College's Research, Assessment and Effectiveness (RAE) office manages the assessment cycle and determines when programs are assessed. Course-level assessment is a part of program-level assessment to determine how students are meeting program outcomes. The College uses an all-in-one approach to assessment and assessment instruments are aligned to the course outcomes and peer reviewed by the Teaching, Learning and Assessment Committee (TLAC). The assessment instruments are administered and the data analyzed to generate a Student Learning Outcome Assessment Report (SLOAR) and Program Learning Outcome Assessment Report (PLOAR). The SLOAR and PLOAR are used to develop an action plan including re-assessment and the results are reviewed.

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

**PAS-1000: First Year Experience (Institutional Requirement)**

**Credits: 1**

This course assists incoming students in making a successful transition to college. Students focus on those behaviors and attitudes that are needed to achieve academic success. Students learn specific academic success skills/strategies and discover resources that are necessary to succeed in their college courses. Students engage in an exploration of the programs of study offered and design goals for learning that lead to an educational and career/professional plan.

**EGR-1010: Introductory Engineering (Program Requirement)****Credits: 3**

This course introduces the student to the theory and practice of engineering. The course has four main parts, each part covering important aspects of engineering, giving the student a full picture of the career they are about to embark upon. The first part will help the student understand what an engineer is and what type of work they would be expected to perform in society. Included in this will be discussions of ethics and group dynamics. The second part will deal with higher level engineering concepts. This will be developed in an application area such as a research laboratory giving students exposure to professional practices common in all engineering disciplines. A number of professional papers will be reviewed leading to the creation of a hypothetical laboratory emphasizing the interaction common to all engineering disciplines. The third part will cover fundamental aspects of engineering including drawing, modeling, problem solving, design, and laboratory experimentation. Basic computer skills will be developed using MATLAB, Fortran, C, or a similar high-level computer language. Finally, a team project will constitute the fourth part. The teams will be expected to develop a product using a number of engineering and software skills.

**MAT-2420: Calculus II (Program Requirement)****Credits: 4**

This course is the second course in a 3-semester sequence of university level calculus for a variety of majors including, but not exclusive to, science, engineering, and mathematics. This course includes the study of integration techniques for single variable functions, applications of integration, improper integrals and infinite series including Taylor series and their applications.

**EGR-1140: Computer Programming for Engineers and Scientists (Program Requirement)****Credits: 3**

This is a high-level introduction to computer tools and computer programming for the engineer and scientist. The goal is to develop within the student sufficient knowledge to perform analysis using common engineering and science programming languages. Topics will include algorithm analysis and solution, program structures, data structures, modular design, and overviews of the computer hardware, various computer tools available to solve real world problems and object-oriented structure. A variety of languages will be introduced such as MATLAB, Fortran, and C with a primary emphasis on one of these languages. The results will be to ensure that from the primary languages a student can easily master the other languages. Along with the aforementioned languages, a number of engineering specific languages such as LABView, Spice, and VHDL will be introduced and practiced in laboratory.

**PHY-2030: General Physics II (Program Requirement)****Credits: 4**

Second semester of a three-semester sequence (PHY PHY-1030, 2030, PHY-2040 for science/engineering transfer students. Calculus-based survey of kinetic theory, thermodynamics, electricity and magnetism, and electromagnetic phenomena. Topics to be covered include fluid dynamics, temperature, heat, heat transfer, kinetic theory of gasses, phase changes, the laws of thermodynamics, heat engines, static electricity, electric forces, potentials and fields, DC circuits, magnetic fields and forces, electromagnetic induction, and Maxwell's Equations. Students will develop their abilities to communicate using the technical language of physics, understand physical theories, conduct laboratory experiments, analyze data, and apply theories to problems.

**MAT-2460: Differential Equations (Program Requirement)**

**Credits: 4**

Study of first order differential equations and higher order linear equations and systems of differential equations and their applications. Solution techniques include various analytical methods, Laplace transforms and numerical methods. The use of mathematical software is an integral part of the course.

**PHY-2040: General Physics III (Program Requirement)****Credits: 4**

Third semester of a three-semester sequence (PHY PHY-1030, PHY-2030, 2040) for science/engineering transfer students. Calculus-based survey of oscillations, wave phenomena and modern physics. Topics to be covered include simple harmonic motion, AC circuits, mechanics of transverse and longitudinal waves, wave refraction, reflection, and superposition, sound, geometric and physical optics, special relativity, atomic structure and models, nuclear reactions and radioactivity, the photoelectric effect, wave-particle duality, and quantum mechanics.

**MAT-2430- Calculus III (Program Requirement)****Credits: 4**

This is the third course in a three-semester sequence of university-level calculus for science, engineering and mathematics majors covering all of the following: analytical geometry in space, vector-valued functions with applications, differentiation and integration of multi-variable functions with applications, integration in vector fields including line and surface integrals, and Green's, Gauss and Stokes theorems.

**ENT-1730: AC and DC Digital Circuits (Program Elective)****Credits: 3**

This course covers analysis of linear electronic circuits and systems which contain resistors, capacitors, inductors, and transformers. It includes network theorems and hands-on use of electronic test equipment and electronic instrumentation. Analysis and design of reactive circuits, including use of phasor and j-operator techniques will be covered.

**ENT 2740: Digital Circuits (Program Elective)****Credits: 4**

Course covers digital circuits from simple gates to complex gate arrays (FPGA). Encoders, multiplexers, adders, counters, and flipflops, number systems, Boolean algebra, and combinatorial logic circuits are also covered.

**ENT 2810: CPU Architecture (Program Elective)****Credits: 4**

Course introduces the architecture and operation of the central processing unit (CPU) using 8-bit and 16-bit microprocessors. Programming concepts using assembly and machine languages are introduced. Topics related to memory organization, input/output interfacing, interrupt processing, and exception processing are explored.

**EGR 2030: Circuit Analysis (Program Elective)****Credits: 4**

This course will introduce the advanced student to the theory of circuit analysis by studying concepts using complex analysis techniques that apply to the electrical engineering, general engineering, and advanced science student alike. Classical analysis techniques of AC/DC circuits using Kirchoff's laws,

mesh and nodal methods, phasor notation, superposition, the application of Thevenin's and Norton's theorem, etc. will be examined. Other topics will include transient analysis of first- and second-order circuits, frequency response, polyphase circuits, two-port networks, diodes, transistors, amplifiers, and digital logic. Different tools to aid in the solution of circuits will be performed such as Laplace transforms, transfer functions in the solution of transient analysis, and FFTs for signal analysis. Analysis using different computer simulation techniques will be introduced for a variety of circuits. This introduction will serve as a primer for more advanced courses in the junior and senior year of college. Some design of circuit boards and testing will also be required in this course. Since circuit analysis is a general concept in engineering, this course will examine throughout the course circuit elements (resistors, capacitors, inductors, sources, etc.) and their underlying concepts extending circuit analysis to all the different scientific and engineering fields. Teamwork along with communication skills (oral, written, and graphical) is exercised throughout the course.

**EGR 2050: Signals and Systems: Modeling, Computation, and Analysis (Program Elective)**

**Credits: 4**

Solving high-level applications in engineering, physics, chemistry, and biology require an understanding of modeling at a system level. To fully prepare a student, this course emphasizes system analysis. Crucial to modeling in the modern world is an understanding of the computational modeling as well as the mathematical formulation, therefore a variety of numerical/computational methods will be reviewed in the first part of the course and extended for the purpose of understanding the computational methods required to do modeling in a modern setting. Subjects to be studied include error analysis, roots of non-linear equations, solving systems of linear equations, eigenvalues, eigenvectors, and eigenfunctions, optimization, curve fitting including splines, Fourier analysis, modeling, numerical differentiation and integration, and numerical solving of differential equations including, but not limited to, predictor-corrector methods and finite element analysis. It will be assumed that the student is at least partially familiar with these concepts from previous mathematics class. Extra study may be required for a student lacking these skills. These concepts will be extended into computational methods that are useful in analyzing signals and systems. Topics will include representation of systems and signals, transfer functions, and filters. The relationship between linear systems and both discrete time and continuous time signals and sampling will be explored and used to better understand real world applications. Practical issues of representation and sampling of signals will be explored with particular emphasis to best case solutions. This will be extended into the study and use of a number of filters, in particular digital filters. Topics will include OTFs, DFTs, Laplace transforms, Z-transforms, Radon transforms, and convolutions. Lastly, there will be extensive surveys of a number of advanced subjects including molecular dynamics, percolation, and Monte Carlo simulation methods. Some new mathematical concepts will be introduced in the class. A number of software packages and languages important to engineering are surveyed with primary emphasis on mastering one high-level language such as MATLAB/Octave, C/ gcc/g++, or Fortran/gfortran. This course, recognizing the fact that all engineers and scientists need the aforementioned topics, will emphasize a number of case studies in such areas as mechanical, civil, environmental, electrical, aerospace, chemical, and biological engineering, as well as in the sciences. Teamwork along with communication skills (oral, written, and graphical) is exercised throughout the course.

**EGR 2450: Electronic and Digital Circuit Laboratory (Program Elective)**

**Credits: 2**

Introduction to basic circuit measurement techniques and laboratory equipment (DMM, analog and digital oscilloscope, power supply, function generator, Digital Logic Analyzers) including the

limitations and inaccuracies inherent in any measurement device. Design, construction, and performance measurement of circuits containing passive elements, digital logic circuits, transformers, diodes, and operational amplifiers. In addition, simulation tools to design circuits and to analyze performance will be used extending work performed in digital logic design and circuit analysis. Knowledge of both steady state response and transient response is required for a number of experiments. Extensive analysis will be demonstrated in both laboratory books and laboratory reports. Knowledge of statistical analysis as well as other methods of analysis will be required in this class.

**ENT 1600: Introduction to CAD with AutoCAD (Program Elective)**

**Credits: 3**

Techniques for creating, editing, annotating, and presenting two-dimensional CAD drawings.

**EGR 2440: Digital Logic Design (Program Elective)**

**Credits: 3**

Introduction to the theory and practice of logic (digital) circuits in order to foster an understanding of modern electrical circuits. Includes but is not limited to the following subjects: Number systems and base conversions; Boolean algebra, truth tables, logic circuits, logic circuits synthesis and implementation; Karnaugh maps (and other strategies of minimization); sequential logic; flip-flops; registers; counters; processors (simple); programmable logic devices; and characteristics of logic families. Some physical hardware is discussed including limitations. This course emphasizes the elements used to create logic circuits and the software (CAD/EDA) used to design and simulate logic circuits. Teamwork and communication skills (oral, written, and graphical) are exercised throughout the course.

**EGR 2200: Statics (Program Elective)**

**Credits: 3**

Principles of mechanics, including points, bodies, and assemblies in static equilibrium. Areas examined will include trusses, frames, beams, cables, machines, point and distributed loading, and moments of inertia, scalar, and vector analysis. More advanced topics will include deformable bodies and stress, strain, torsion, shear, bending, and fracture. Introduction to kinetics, kinematics, and strength of materials.

**EGR 2210: Dynamics (Program Elective)**

**Credits: 3**

Kinematics and kinetics of particles, systems, and bodies. Topics include work and energy, impulse and momentum, rigid body motion, and rotating bodies. More advanced topics include the general theorems for systems of particles and the inertia tensor.

**EGR 2220: Solid Mechanics (Program Elective)**

**Credits: 3**

Topics in deformable bodies in axial, torsional, bending, and combined loading. This course extends the introductory strength of materials to intermediate continuum mechanics. Other topics include statically indeterminate and temperature effect analysis; beam, column, and pressure vessel configurations. More advanced topics include structural stability, analysis of one- and two-dimensional structures, inelastic material behavior, and energy methods.

**EGR 2300: Materials Science for Engineers and Scientists (Program Elective)**

**Credits: 3**

Introduces the foundations of the chemistry and physics of materials used in engineering applications. Develops the relationship between the atomic and molecular structure of materials and the macroscopic properties and performance of engineering material. In particular, includes thorough discussion of the chemical and physical properties of metals, ceramics, polymers, semiconductors, superconductors, and nanomaterials.

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

**Composition:****EGL-1010: Composition I: Expository Writing (English General Education Requirement)****Credits: 3**

University-parallel freshman English. Fundamentals of effective prose writing, including research-based informative, analytical, and argumentative essays.

**Humanities:****COM-1090: Interpersonal Communication (Arts/Humanities General Education Requirement)****Credits: 3**

This foundational study of human communication takes place in a survey course designed to explore everyday relationships in various settings. This course provides foundational awareness of interpersonal communication and engages in skill-building practices to enhance students' capabilities. Students learn the basics of interpersonal communication skills and how they affect one's communication style. Emphasis is placed on communication dynamics and climate and conflict management strategies.

**PHL-1090: Introduction to Logic (Arts/Humanities General Education Requirement)****Credits: 3**

The elements of logic: how to translate ordinary language into logical form and craft valid arguments.

**Mathematics:****MAT-2410: Calculus I (Mathematics General Education Requirement)****Credits: 4**

This course is the first course in a three-semester sequence of university-level calculus for a variety of majors including, but not exclusive to, science, engineering, and mathematics. The course is an introduction to single variable calculus: study of limits, continuity, differentiation and its applications, definite and indefinite integrals and the Fundamental Theorem of Calculus.



Science:

**PHY-1030: General Physics I (Science No Lab General Education Requirement)**

**Credits: 3**

First semester of a three-semester sequence (PHY- 1030, PHY-2030, PHY-2040) for science/engineering transfer students. Calculus-based study of classical mechanics. Topics to be covered include vector math, kinematics, statics, dynamics, work and energy, impulse and momentum, conservation laws, rotational dynamics, hydrostatics, and Newtonian gravity. Students will develop their abilities to communicate using the technical language of physics, understand physical theories, and apply theories to problems.

**CHM-2000: General Chemistry for Engineering (Science w/Lab General Education Requirement)**

**Credits: 4**

Calculus-based class designed for students who wish to have a highly technical understanding of chemistry for application design. In CHM 2000 you will be provided with the essential application-based background to understand materials, fluids, and gases working from atomic models up to the macroscopic level. This course will develop and broaden your understanding of matter, energy, and physical properties. Traditional general chemistry topics will be covered in a technically detailed fashion. Additional topics will include bonding, reactions, changes of states, equilibrium, thermodynamics, electrochemistry, kinetics, and nuclear chemistry. Practical skills will be developed such that you will be able to predict and describe in appropriate technical detail the properties of a chemical system along with modern materials such as polymers and semiconductors and with modern devices such as fuel cells and batteries.

Social Sciences:

**ECN-1030: Principles of Macroeconomics (Social Science General Education Requirement)**

**Credits: 3**

This course explores the factors that impact the overall performance of an economy, by examining aspects of the economy from an aggregate perspective. It focuses on the policies that government pursues in order to achieve price stability, economic growth and full employment. Topics covered include supply and demand analysis, national income accounting, business cycles, aggregate expenditure and aggregate demand and supply models, and fiscal and monetary policy.

Computer Literacy: This program is exempt from the institutional computer literacy requirement.

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

There are no specialized accreditation or graduate certification program associated with this program.

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

There is no contract with any other institution or non-collegiate organization associated with 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 and financial aid resources, and costs and payment policies.

Clear, complete, and timely information on the curriculum, course and degree requirements will be posted in the [college catalog](#). Each program has a dedicated page in the college catalog where the program description will be located. The nature of faculty and student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services are located in the course syllabus, college catalog or the Learning Management System. Financial aid resources, costs and payment policies are located on the college website under "[Paying For College](#)".

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 PGCC Office of Communications and Marketing will create brochures, flyers and electronic marketing (e-marketing) materials necessary to promote and advertise the program to potential students. The Office of Communications and Marketing department provides communications materials that create awareness and visibility to efforts to promote the program both internally and externally. The internal process of creating recruitment and advertising materials follows the internal process used by the Office of Communications and Marketing. The information regarding prior learning can be found on the College website: [Transfer Credit Policies and Procedures](#).

## PART H: Adequacy of Articulation

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

For more information: [Transfer Agreements](#) and [Articulation Agreements](#)

Although PGCC has a number of transfer agreements with four-year public institutions in Maryland, this program does not currently have any specific articulation agreements with programs at partner institutions. PGCC will actively pursue articulation agreements for this specific program upon its approval by MHEC.

## Part 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 the proposed program.

Only program courses have to be included (required and elective). Institutional requirements and general education courses do not need to be included.

In the last column, do not list any courses outside of this program.

<b><i>Faculty Name</i></b>	<b><i>Appointment Type</i></b>	<b><i>Terminal Degree</i></b>	<b><i>Academic Title/Rank</i></b>	<b><i>Status</i></b>	<b><i>Course(s) Faculty Member will teach in this Program</i></b>
Besharatian, Hossein	Tenure-track	D.Sc. Computer Science-Engineering	Professor	Full-time	EGR-1010: Introductory Engineering; EGR-1140: Computer Programming for Engineers and Scientists; EGR-2050: Signals and Systems: Modeling, Computation, and Analysis
Bakhtiari Nejad, F	Contract	PhD, Engineering	Instructor	Adjunct	EGR-2200: Statics; EGR-2030: Circuit Analysis; EGR-2440: Digital Logic Design; EGR-2450: Electronic and Digital Circuit Laboratory
Mennella, Rocco	Tenure-track	M.S. - Engineering	Professor	Full-time	EGR-2220: Solid Mechanics; EGR-2210: Dynamics; EGR-2300: Materials Science for Engineers and Scientists
Haptemariam , Zewdu	Tenure-Track	M.S., Communication Engineering	Associate Professor	Full-time	ENT-1730 DC and AC Circuit Analysis; ENT-1740: Digital Circuits; ENT-2810: CPU Architecture; ENT-1600: Introduction to CAD with AutoCAD
Novick, Jaison	Tenure-track	Ph. D Mathematics	Associate Professor	Full-time	MAT-2420: Calculus II; MAT-2430: Calculus III

Thakur, Neeharika	Tenured	Ph. D Physics	Professor	Full-time	PHY-2030: General Physics II; PHY-2040: General Physics III
Konnova, Svetlana	Tenure-track	Ph. D. Physics	Associate Professor	Full-time	MAT-2460: Differential Equations

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

- a. *Pedagogy that meets the needs of the students*
- b. *The learning management system*
- c. *Evidenced-based best practices for distance education, if distance education is offered.*

a. The Teaching and Learning Center (TLC) at Prince George’s Community College (PGCC) is dedicated to supporting the needs of our faculty and students by providing quality resources and professional development opportunities to promote best practices in teaching and learning. The TLC, which was recently started in July 2021, hosts an internal Canvas site, that houses resources such as videos, articles, asynchronous training, and links to various educational sites for more support. Resources in this area include Open Educational Resources (OERs), strategies to engage students, ways to integrate technology, collaborative learning, inquiry-based learning, writing to learn, and more.

The TLC works with various organizations to provide pedagogical resources and training for all faculty members. The College has partnerships with MAGNA Publications, the National Institute for Staff and Organizational Development (NISOD), the Association of College and University Educators (ACUE), University of Maryland, Baltimore County (UMBC) and the Online Learning Consortium (OLC). All of these organizations support institutions of higher education in addressing needs of the faculty and students. The professional development includes presentations on active-learning, Hy-Flex teaching, assessment, course design and delivery, higher-order thinking, and leadership, just to name a few.

Various workshops and cohort groups are held regularly in-person and online to support faculty. The topics of the presentations vary but all support effective teaching and learning practices for higher education. Recent areas included:

- Game-based Learning
- Active-Learning
- Open Educational Resources
- Peer Mentoring

PGCC also provides professional development support for faculty through conferences, on and off-campus. Faculty self-select attendance at professional, university, and college workshops. Annually the college hosts two full-day professional development conferences. The workshops focus on best practices in higher education, active-learning strategies and high-impact practices.

b. To support training with the Learning Management System (LMS), the TLC works with internal partners such as eLearning to host Canvas presentations (Canvas is PGCC’s LMS). Internal and external support is provided to train faculty on various aspects of the LMS and how it can be used to support student success. Workshops include, creating accessible assignments, engaging students, adding

rubrics, using polls and more. The college consistently provides professional development to increase the knowledge and use of other technologies linked to our LMS, such as Voice Thread, and Panopto.

c. PGCC has various tools in place to support our students and faculty as they learn and teach at a distance. The College offers Structured Remote Training and Online Express Prep to support the faculty in the course design and delivery of online courses. Beyond this, PGCC works with Quality Matters to provide professional development for faculty that teach asynchronously to make sure best practices are used in online teaching. Another form of professional development that supports best practices for distance education is the course from the Association of College and University Educators (ACUE). These courses support evidence-based teaching practices that include, creating an inclusive and supportive learning environment, promoting active learning online, and designing learner centered courses just to name a few. PGCC also partners with the Online Learning Consortium (OLC) which is known for promoting best practices for distance learning. At PGCC, we offer faculty professional development for teaching in a Hy-Flex format. This training teaches ways to include and engage all students, while promoting best practices in online instruction.

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

1. Describe the **library resources** available and/or the measures to be taken to ensure resources are adequate to support the proposed program.

The library maintains extensive, online-accessible databases, journals, and e-texts. Students may request holdings and inter-library loans either by email or in person. Additionally, the library will provide journals and publications specifically related to the various professions in the field.

The PGCC library has extensive online resources available to students, including:

- Credo Reference
- EBook Central
- EBSCO Host Academic E-book Collection Gale Virtual Reference Library
- Information Science (Gale OneFile)
- ProQuest General Database
- PubMed Database
- Streaming Video Films on Demand VAST Academic Video Collection

Moreover, the library has ready access to:

- a) Interlibrary loan services compliant to and in support of the Library of Congress and its Bibliographic Utilities.
- b) The holdings of the Prince George's County Memorial Library System.
- c) The holdings of the University of Maryland System.

## PART 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 studies in the technologies and sciences.

This program will mainly be housed in the Center for Advanced Technology. Current buildings, classroom, lab, and office spaces, and teaching and learning equipment are sufficient to support this program. All laboratories and classrooms are equipped with Smart technology (classroom computer and audio-visual equipment) to maximize instruction, teacher demonstration and therefore, the highest standards in education. All facilities and equipment are subject to routine cleaning, inspection, and maintenance. The College does not anticipate the need for additional space for this program.

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:

a. *An institutional **electronic mailing system***

Prince George’s Community College provides access to its electronic mailing system (Microsoft 365 Outlook) to its full-time and part-time faculty members. Each faculty member’s school email address uses the domain @pgcc.edu. Faculty receive emails from both students and colleagues via the Outlook system. Students enrolled in credit programs are issued a school email address upon enrollment. Each Prince George’s Community College student email address uses the domain @students.pgcc.edu.

b. *A **learning management system** that provides the necessary technological support for distance education*

Each course offered at the College is created in a Canvas shell that allows remote access during a given semester. Each faculty member, full-time or part-time, is given access to each class that he/she is assigned to teach via the Canvas Learning Management System (LMS). Within the learning management system, faculty are able to see who is enrolled in the course, create a gradebook, create discussion boards, upload various content formats, and communicate with individual or groups of students. Zoom is integrated into each Canvas course through an LTI (learning tools integration). Panopto is integrated into each Canvas section through as LTI to ensure student privacy as well as provide streaming technology in accordance with the best practices for video.

After successfully enrolling in a course at Prince George’s Community College, each student is provided access to each course that he/she is enrolled for the given semester. Access to the course is granted four days prior to the official start of the course. Within the learning management system, students can access all course content posted by the instructor, access graded assignments, and communicate with the instructor and other students.

**PART 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 reallocated to support the proposed program, briefly discuss the sources of those funds.

<b>TABLE 1: PROGRAM RESOURCES</b>					
<b>Resource Categories</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0

2. Tuition/Fee Revenue (c + g below)	\$237,636	\$249,228	\$262,752	\$276,276	\$289,800
a. Number of F/T Students	24	26	28	30	32
b. Annual Tuition/Fee Rate	\$4,830	\$4,830	\$4,830	\$4,830	\$4,830
c. Total F/T Revenue (a x b)	\$115,920	\$125,580	\$135,240	\$144,900	\$154,560
d. Number of P/T Students	63	64	66	68	70
e. Credit Hour Rate	\$161	\$161	\$161	\$161	\$161
f. Annual Credit Hours	12	12	12	12	12
g. Total P/T Revenue (d x e x f)	\$121,716	\$123,648	\$127,512	\$131,376	\$135,240
3. Grants, Contracts & Other External Sources	\$0	\$0	\$0	\$0	\$0
4. Other Sources	\$0	\$0	\$0	\$0	\$0
TOTAL (Add 1 – 4)	\$237,636	\$249,228	\$262,752	\$276,276	\$289,800

*Reallocated Funds:*

There are no reallocated funds needed to support this program.

*Tuition/Fee Revenue:*

Assuming modest growth in both full-time and part-time enrollments and tuition and fees are assumed constant over the next five years, the chart displays the overall financials for the program. The in-county tuition rate of \$114 per credit and a fee of \$47 per credit for a total of \$161 per credit have been used to calculate revenue; with 30 credits per year for full-time students, and an average of 12 credits per year for part-time.

*Grants, Contracts, & Other External Sources:*

This program does not use grants, contracts or external sources for funding.

*Other Sources:*

There are no other sources used for funding.



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: PROGRAM EXPENDITURES					
Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b + c) below	\$ 0	\$0	\$0	\$0	\$0
a. Number of FTE	0	0	0	0	0
b. Total Salary	\$0	\$0	\$0	\$0	\$0
c. Total Benefits	\$ 0	\$0	\$0	\$0	\$0
2. Admin Staff (b + c below)	\$0	\$0	\$0	\$0	\$0
a. Number of FTE	0	0	0	0	0
b. Total Salary	\$0	\$0	\$0	\$0	\$0
c. Total Benefits	\$0	\$0	\$0	\$0	\$0
3. Support Staff (b + c below)	\$0	\$0	\$0	\$0	\$0
a. Number of FTE	0	0	0	0	0
b. Total Salary	\$0	\$0	\$0	\$0	\$0
c. Total Benefits	\$0	\$0	\$0	\$0	\$0
4. Technical Support and Equipment	\$0	\$0	\$0	\$0	\$0
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$0	\$0	\$0	\$0	\$0
TOTAL (Add 1 – 7)	\$0	\$0	\$0	\$0	\$0

<p><i>Faculty:</i></p> <p>No new faculty are needed for this program. There are a number of qualified full-time and adjunct faculty currently employed by the College to teach General Education and required program courses in the specific disciplines.</p>
<p><i>Admin Staff:</i></p> <p>This program will be housed in the Technology, Engineering and Construction Department, as part of the STEM Division, which already has a dean, associate dean, department chair, and coordinator in place who will support the program. No additional administrative staff is necessary.</p>
<p><i>Support Staff:</i></p> <p>This program will be housed in the Technology, Engineering and Construction Department. Office associates support the department as a whole, and not individual programs, so it is not expected that any new support staff will be needed.</p>
<p><i>Technical Support and Equipment:</i></p> <p>There is no additional or new technical support or equipment needed for this program. Current technical support and equipment is sufficient for the needs of the students and faculty.</p>
<p><i>Library:</i></p> <p>Current library materials are sufficient for the needs of the students and faculty.</p>
<p><i>New or Renovated Space:</i></p> <p>There is no new or renovated space needed for this program. Current classroom space is sufficient for the needs of the students and faculty.</p>
<p><i>Other Expenses:</i></p> <p>There are no other expenses required or needed for this program.</p>

Part M: Adequacy of Provisions for Evaluation of Program (as outlined in COMAR [13B.02.03.15](#)).

1. Discuss procedures for **evaluating courses, faculty and student learning outcomes**.

<p>Prince George’s Community College has identified three sets of learning outcomes for its students: course, program, and the College’s Core Competencies (institutional learning outcomes). Course outcomes define the skills, knowledge, and values that students are expected to acquire upon completion of a course. Program outcomes specify the skills, knowledge, and values that students are expected to acquire upon completion of a program of study. The College has a rigorous course and program assessment process. Course assessment takes place by using embedded tests and assignments that address specific course outcomes. Data from these course-embedded assessments are publicly distributed every semester in the Student Learning Outcomes Assessment Report (SLOAR). An additional report showing student achievement of the Program Learning Outcomes Assessment Report (PLOAR) and Student Core Competencies are published every year and analyzed to improve courses and to ensure program learning outcomes are met.</p> <p>Non-tenured faculty members are evaluated yearly by students and administrators. Each year, non-tenured faculty members have their course material and student evaluations assessed by their department chairs and deans, with final verification of the assessment conducted by the Executive Vice President and Provost for Teaching, Learning and Student Success. In order to receive high</p>
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evaluations, faculty members must demonstrate effective teaching above all, but professional development in the discipline and participation in departmental, divisional, and college-wide activities is also assessed. The same criteria for evaluation are carried out for tenured members of the faculty, but once every three years. The above assessment process also provides administrators the opportunity to set out action plans for faculty improvement in teaching, professional development, and/or college service in order for each or any of those facets of the faculty member's career to be enhanced.

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.

Complete program assessment takes place every four years, with progress toward achievement of improvement plans being evaluated every two years. Data regarding enrollment, retention, and graduation are collected and analyzed against program outcomes, courses offered, and other variables. Each program must have an advisory board consisting of professionals in the field assist in the construction and analysis of program review data. The college has a five-year program review cycle which entails program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

## PART N: Consistency with the State's Minority Student Achievement Goals (as outlined in [COMAR 13B.02.03.05](#)).

1. Discuss how the proposed program addresses **minority student access and success**, and the institution's **cultural diversity goals and initiatives**.

Prince George's Community College provides affordable, high-quality learning experiences that support personal, professional, and educational development for diverse populations, contributing to the economic equity and cultural vibrancy of our community. The mission of Prince George's Community College is compatible with the State's minority achievement goals. The College provides accessible and affordable education, and it is committed to diversity. With a majority African American student body and a significant Hispanic/Latino student population, Prince George's Community College is well positioned to provide opportunities for students traditionally underrepresented in higher education. Moreover, the graduates of this program will further align with the racial makeup of the region's workforce. The College will continue to recruit a diverse student base from both public and private schools and the local community. In addition to working with and relying on the college's student recruiting professionals, additional activities to recruit a diverse body of students will include:

- involvement with community-based organizations, high schools, and teen church programs;
- increased visibility of the new programs (e.g. college Website and catalog); and
- clear communication about the integrated nature of the academic work with practical experience and professional networking opportunities.

In sum, the College will continue to engage with community partners and stakeholders who represent the diversity of the region.

PGCC has a Diversity, Equity and Inclusion office and a number of programs geared to special populations, including Diverse Male Student Initiatives (DMSI), Women of Wisdom (W.O.W.), and Vocational Support Services. Additionally, interactive workshops and cultural diversity events are available on an ongoing basis at both the main campus and the extension centers. Furthermore, a Truth, Racial Healing, and Transformation (TRHT) Campus Center organizes Listening Sessions and Racial Healing Circles. Each of these initiatives focuses on improving the retention and success of minority students.

## Part O: Relationship to Low Productivity Programs Identified by the Commission:

1. 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 considered a low-productivity program.

## PART 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**.

Prince George's Community College is eligible to provide Distance Education by the Maryland Higher Education Commission (MHEC). Please see File 22293.

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

Prince George's Community College provides assurance that programs that are offered in a distance format comply with current CRAC guidelines. Please find a copy of the institution's accreditation status for offering distance learning through MSCHE at the following link: <https://www.msche.org/institution/0175/>. The college also participates in the National Council for State Authorization Reciprocity Agreements (NC-SARA) as evidenced on the following link: <https://nc-sara.org/directory>.

The program offers the following courses in a distance learning format:

PAS-1000: First Year Experience  
EGL-1010: Composition I: Expository Writing  
ECN-1030: Principles of Macroeconomics  
MAT-2410: Calculus I  
PHL-1090: Introduction to Logic  
MAT-2420: Calculus II  
COM-1090: Interpersonal Communication  
MAT-2430: Calculus III