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SALISBURY MD 21804
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December 1, 2022

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

Dear Dr. Fielder:

Please accept this letter requesting the approval of the Associate of Applied Science in Electro-Mechanical Technologies. This new degree program has been recommended through the college curriculum committee and approved by the President and Board of Trustees.

Check number 0266272 was mailed on November 28, 2022, with a letter and summary of the changes requested for Wor-Wic Community College. This letter, corresponding coversheet and new program proposal are being sent electronically.

Please contact me should you have any questions and/or need further information. Thank you for your time and consideration.

Sincerely,



Kristin L. Mallory, Ed.D.
Vice President for Academic Affairs

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

Institution Submitting Proposal	Wor-Wic Community College
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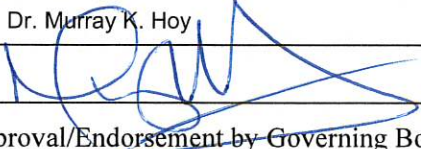
Each action below requires a separate proposal and cover sheet.

- | | |
|---|---|
| <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 checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS # 0266272	Payment \$850	Date Submitted: 12/01/2022
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check # 0266272	Amount:	

Department Proposing Program	Applied Technology		
Degree Level and Degree Type	Associate of Applied Science		
Title of Proposed Program	Electro-Mechanical Technologies		
Total Number of Credits	60		
Suggested Codes	HEGIS: 5311.00	CIP: 15.0499	
Program Modality	<input checked="" type="radio"/> On-campus	<input type="radio"/> Distance Education (fully online)	
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: 2023
Provide Link to Most Recent Academic Catalog	URL: https://catalog.worwic.edu/		

Preferred Contact for this Proposal	Name:	Dr. Kristin L. Mallory
	Title:	Vice President for Academic Affairs
	Phone:	(410) 334-2813
	Email:	kmallory@worwic.edu

President/Chief Executive	Type Name:	Dr. Murray K. Hoy
	Signature:	 Date: 12/01/2022
	Date of Approval/Endorsement by Governing Board:	12/01/2022

Revised 1/2021

ACADEMIC PROGRAM PROPOSAL
Electro-Mechanical Technologies, AAS
Wor-Wic Community College

A. Centrality to Institutional Mission Statement and Planning Priorities

A.1. Description of program:

Wor-Wic Community College is applying to add an Electro-Mechanical Technologies, AAS program. The degree will prepare students with the skills and knowledge for positions in construction, manufacturing, distribution center positions, and industrial and commercial machine maintenance. The degree will serve a variety of industries and businesses throughout the Maryland's Lower Eastern Shore region who employ skilled trades individuals. The graduates will provide safe assembly, installation, operation, and maintenance of buildings and machines in commercial buildings, manufacturing, and distribution center companies throughout the Lower Eastern Shore. Wor-Wic Community College's tri-county service area on the Lower Eastern Shore region spans 40 miles from the Nanticoke River and Chesapeake Bay to the Atlantic Ocean. The service area includes the Atlantic Ocean coastal tourism industry along the barrier island from the Delaware/Maryland state border to Ocean City, MD, and mainland communities along the Assawoman Bay, Isle of Wright Bay, and Sinepuxent Bay. These locations have several construction and manufacturing opportunities, including food and pharmaceutical as well as bottling and distribution companies. The degree program will prepare students with the training and education for apprenticeship positions and to become journey-level industrial maintenance technicians. Individuals who complete this AAS degree will be well prepared to move on directly into high demand skilled trades, which are currently experiencing shortages of labor.

The Electro-Mechanical Technologies, AAS degree program is a two-year program, with a total of 60 credit hours.

The Electro-Mechanical Technologies, AAS degree program supports Wor-Wic Community College's mission by "...delivering high-quality, affordable education, professional training, workforce development opportunities, and comprehensive student services that strengthen economic growth and improve the quality of life on the Lower Eastern Shore." Through offering "high quality, affordable educational offerings and comprehensive support services designed to facilitate student goal completion," the Electro-Mechanical Technologies, AAS degree program students will the technical skills/knowledge, at an affordable tuition/cost while serving the residents of the college's service area.

A.2. Support of strategic goals:

The proposed AAS degree directly supports the 2022-2027 strategic priorities and goals for the college:

Strategic Priority One: Student Success

1. Develop and implement enrollment, retention, and completion strategies to support student and community needs. The goals are to:

- a. Increase new student enrollment.
 - c. Increase overall degree completion.
3. Increase student success by expanding support services, delivering relevant courses and programs, and providing flexible scheduling. The goals are to:
- b. Evaluate the relevancy of all academic program and course offerings.
 - c. Deliver flexible scheduling options in support of recruitment and retention efforts.

A.3. Funding for first five years

To support the Electro-Mechanical Technologies, AAS degree program, Wor-Wic Community College has hired a full-time faculty department head during 2022 to develop new programs and teach courses in a skilled trades area. Part-time faculty will be hired to teach other skilled trades courses. Grant funding has been obtained for the faculty's salary and fringe benefits for the first three years of offering the program in accordance with grant regulations and requirements. Additional expenses for faculty salaries, professional development, course supplies or equipment will be subsidized by course tuition and fees. Beyond grant funding and tuition and fees, Wor-Wic Community College will provide support through the college's operational budget allocations to the Electro-Mechanical Technologies, AAS degree program.

A.4. Institutional Commitment

The Electro-Mechanical Technologies, AAS degree program was approved by Wor-Wic Community College's Curriculum Committee and will be administered by the Applied Technologies Department under the Occupational and Emerging Technologies Division. Under this organizational assignment, the Department Head will provide direct supervision of the program curriculum, courses, part-time faculty selection/evaluation, budget management, program advisory committee, scheduling courses for each semester and faculty teaching assignments. The Applied Technologies Department administrative support will also provide support to the Electro-Mechanical Technologies, AAS degree program. A request for an applied technologies lab technician has been submitted through the college's annual budget review and request process. The applied technologies lab technician would provide technical assistance and oversight of equipment, tools, materials, and supplies to support the program's courses.

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

B.1 Goal: To support the Maryland 2022 State Plan for Higher Education goal Student Success: Promote and implement practices and policies that will ensure student success -

Priority 5: Maintain the commitment to high-quality postsecondary education in Maryland.

The Electro-Mechanical Technologies AAS degree program is designed to utilize real world experiences in hands-on high-quality lab combined with lecture and simulations to prepare students to be employed in high skill and high wage occupations as well as liberal arts courses that develop highly sought after by industry soft skills. This is with the intent to provide student with a well-rounded educational experience.

Priority 7: Enhance the ways postsecondary education is a platform for ongoing lifelong learning.

The Electro-Mechanical Technologies AAS degree program provides a pathway into high tech occupations which require ongoing professional development. Students who are interested in ongoing education could go on to a four-year degree program if a Bachelor of Applied Science or technology is available.

The City of Salisbury, MD ranked 13th in *US News and World Reports: Fastest-Growing Places in the US in 2020-21*. The Maryland Department of Planning, using projected population data for 2020 which will be updated when the 2020 Census data is processed, forecasts that between 2020-2025 the population will increase in the Wor-Wic Community College tri-county service area by 0.95% (10,850 residents). However, the US Census Bureau is reporting that Wicomico County experienced a 4.9% population increase and Worcester County experienced a 2.0% population increase between 2010 and 2020. This data does not include recent population movements due to events that occurred during the 2020 calendar year resulting in residents relocating from large cities to smaller cities, suburban areas, and rural communities.

The job outlook between 2020-2030 per the Maryland Department of Labor for industrial machinery mechanics and installers is expected to increase from 3,638 job positions to 4,553 job positions for an increase of 915 (25.15%), which is higher than the national increase (21%). All other related classifications show increases averaging around 10%. These include Installation, maintenance, and repair workers; Maintenance and repair workers, general; Electrical and electronic repairers; Stationary engineers; and Boiler operators.

The job outlook between 2021-2029 per EMSI for the occupation grouping above relating to industrial machinery mechanics and installers on Maryland's Lower Eastern Shore region, which is Wor-Wic Community College's tri-county service area of Somerset; Wicomico; and Worcester counties, is expected to increase from 308 job positions to 380 job positions, an increase of 71 (23.2%).

Both Maryland's Department of Labor's and EMSI's labor projections do not include the increased need for electro-mechanical skilled labor on the Lower Eastern Shore region to support the proposed offshore electric generation wind farm. Construction of offshore electric generating windmills are expected to begin between 2023-2024.

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

C.1. 1. Employment opportunities

The Electro-Mechanical Technologies, AAS degree program will prepare students with the skills and knowledge for trades apprenticeship positions, serving a variety of industries and businesses throughout the Maryland's Lower Eastern Shore region where trades skills are used.

Industries and businesses on the Lower Eastern Shore who employ electro-mechanical and welding technicians provide construction, installation, maintenance, and repair services to commercial and industrial customers throughout the Lower Eastern Shore. Wor-Wic Community College's tri-county service area on the Lower Eastern Shore region spans 40 miles from the Nanticoke River and Chesapeake Bay to the Atlantic Ocean. The service area includes the Atlantic Ocean coastal tourism industry along the barrier island from the Delaware/Maryland state board to Ocean City, MD, and mainland communities along the Assawoman Bay, Isle of Wright Bay, and Sinepuxent Bay which have many seasonal rental properties and retirement communities.

C.2. Data analysis projecting market demand

All related occupations (Codes) searched for in data analysis for electro-mechanical:

- Industrial Machinery Mechanics
- Installation, Maintenance, and Repair Workers, All Other
- Electrical and Electronics Repairers, Powerhouse, Substation, and Relay
- Stationary Engineers and Boiler Operators

Between 2021 to 2029, it is expected that there will be a 23.2% increase in positions across the three counties in Maryland's Lower Eastern Shore region (EMSI, Q3 2022 data).

Currently, more than 56.8% of all incumbent industrial machine mechanics, related skilled trades and installation workers are 45 years or older (EMSI Q3 2022 data).

The demand for electro-mechanical technicians and related skilled trades and installers will increase along with regional development to support the continued increase of residents relocating from metropolitan areas within 150 miles of the Lower Eastern Shore and from Northeast mid-Atlantic states.

C.3. Educational and training needs over the next 5 years

Given the number of industries on the Maryland's Lower Eastern Shore who rely on qualified the electro-mechanical technicians and the number of workers who are over the age of 45, there will be an increased need for more workers in this career field to sustain these industries and support the future growth throughout the region.

C.4. Current and Projected supply of prospective graduates

A credit bearing Electro-Mechanical Technologies, AAS degree program does not exist in the Lower Eastern Shore region of Maryland. A combination of full-time and part-time enrolled students are expected to pursue training in the industrial technology trade skill areas. Currently, Wor-Wic Community College offers non-credit training in skilled trades delivered by the Continuing Education and Workforce Development division, which graduates 10 – 15 or more students each year.

D. Reasonableness of Program Duplication

D.1. Similar programs in state or surrounding area:

Within the State of Maryland, there are five colleges that offer academic programs in the skill area. None of the five are on Maryland’s Eastern Shore:

Anne Arundel Community College

- | | |
|------------------|----------------------------|
| i. Mechatronics | Lower Division Certificate |
| ii. Mechatronics | Associate Degree |

Baltimore City Community College

- | | |
|--------------------------------------|----------------------------|
| i. Robotics and Mechatronics | Lower Division Certificate |
| ii. Robotics/Mechatronics Technology | Associate Degree |

Community College of Baltimore County

- | | |
|---|------------------|
| i. Electro-Mechanical Engineering Tech. | Associate Degree |
|---|------------------|

Hagerstown Community College

- | | |
|------------------------------------|----------------------------|
| i. Industrial Technology | Lower Division Certificate |
| ii. Advanced Manufacturing Systems | Associate Degree |

Harford Community College

- | | |
|-----------------------------|----------------------------|
| i. Manufacturing Technician | Lower Division Certificate |
| ii. Engineering Technology | Associate Degree |

D.2. Justification for Proposed Program

The Electro-Mechanical Technologies, AAS degree program will provide students with the necessary training and education to be skilled trades occupations for repairers, installers and eligible for apprenticeship positions in pursuit appropriate industry credentials and certifications.

Industries and businesses on the Lower Eastern Shore who employ electro-mechanical technicians provide installation, maintenance, and repair services to commercial and industrial customers throughout the region. Wor-Wic Community College’s tri-county service area on the Lower Eastern Shore region spans 40 miles from the Nanticoke River and Chesapeake Bay to the Atlantic Ocean. The service area includes the Atlantic Ocean coastal tourism and manufacturing industry along the barrier island from the Delaware/Maryland state board to Ocean City, MD, and mainland communities along the

Assawoman Bay, Isle of Wright Bay, and Sinepuxent Bay which have many seasonal commercial properties and manufacturing facilities.

Currently the three CTE high schools in Wor-Wic CC's service area (Somerset County Technical High School, Wicomico County Career Technical High School at Parkside High School, and Worcester Technical High School) offer some related programs as a CTE cluster. Welding programs are currently offered and articulation agreements for high school students transferring to Wor-Wic Community College will be reviewed during the annual meeting for articulation opportunities with the three county school systems: Somerset County Public Schools, Wicomico County Public Schools, and Worcester County Public Schools.

The Electro-Mechanical Technologies, AAS degree program will be established in Wor-Wic Community College's new Guerrieri Technologies Center which has completed the pre-construction. The facilities allocated for the Electro-Mechanical Technologies, AAS degree program is an industrial, welding technology and simulation labs that will contain training equipment for skilled trades subject areas. The building is planned to open during the summer of 2023 for fall 2023 instruction.

E. Relevance to High Demand Programs at Historically Black Institutions

The Electro-Mechanical Technologies, AAS degree program is not a transfer program where students can transfer and continue their education at an HBCU institution. None of the HBCU's within 200 miles offer a similar program. The degree program will prepare students for direct employment opportunities. However, through obtaining a stable job with a good salary, graduates may choose to return to college to pursue a Baccalaureate degree at one of the HBCU's within a 200-mile radius of Wor-Wic Community College:

- Bowie State University, MD
- Coppin State University, MD
- Morgan State University, MD
- University of Maryland Eastern Shore, MD

F. Relevance to the Identity of Historically Black Institutions

The Electro-Mechanical Technologies, AAS degree program will provide opportunities for all students to gain technical skills and knowledge to pursue NIMS Industrial Maintenance Technician certification. The addition of this program will not impact the Maryland HBCU's.

G. Adequacy of Curriculum Design and Delivery to Related Learning Outcomes

G.1. Describe how the program was established and the faculty who will oversee the program.

Wor-Wic Community College has been approved to construct a new building on the college's campus which will contain training equipment for electro-mechanical subjects and concepts. The building is planned to open during the summer of 2023 for fall 2023 instruction.

Electro-Mechanical Technologies, AAS degree program will be administered by the Applied Technologies Department under the Occupational and Emerging Technologies Division. Under this organizational assignment, the Department Head will provide direct supervision of the program curriculum, courses, additional part-time faculty selection and evaluation, budget management, program advisory committee, scheduling courses for each semester and faculty teaching assignments. The Technology Department administrative support will also provide support to the Electro-Mechanical Technologies, AAS degree program, and a request for an applied technologies lab technician has been submitted through the annual budget review and request process. The applied technologies lab technician would provide technical assistance and oversight of equipment, tools, materials, and supplies to support the program's courses.

G.2. Educational Objectives and Student Learning Outcomes:

Student Learning Outcomes for the Electro-Mechanical Technologies, AAS degree are:

1. Apply proper mechanical and electrical safety rules while operating and troubleshooting industrial and commercial machines.
2. Demonstrate the interpretation of machine drawings when installing and troubleshooting electro-mechanical systems.
3. Perform machine measurements, alignments, and preventative and corrective maintenance on electro-mechanical devices.
4. Perform calculations and test procedures on integrated machine systems.

G.3. Assessment

a. Student Learning Outcomes

Wor-Wic Community College maintains academic policies and procedures in the college Policies and Procedures Manual (PPM) which are reviewed on a regular basis and revised or updated as needed. In accordance with the PPM, academic programs/courses and faculty are reviewed and assessed annually on the student learning outcomes (SLOs). The standard benchmark for courses is a 70% pass rate for course objectives at the end of semester final exam. In the department heads' annual program reports, plans of action are developed for the upcoming year to address steps of improvement when benchmarks are not met. The plans of action are reviewed, and updates are prepared twice during the upcoming year: 6 months and 1 year. Both the dean for the program's division and the Vice President for Academic Affairs prepares responses to the department heads' annual reports.

b. Program Learning Outcomes

Wor-Wic Community College has an extensive and thorough assessment plan that is managed by the Director of Institutional Assessment and Effectiveness who has revamped the assessment process since coming to Wor-Wic. Under the Director, all courses and programs have annual reviews validating that General Education objectives and student learning outcomes are met. Annually, department heads prepare reports on the status of the programs within the department, course assessments results and action plans for the next academic year. All programs are reviewed on a five-year cycle.

G.4. Course list including title, credit hours, and course descriptions:

<i>Electro-Mechanical Technologies, AAS degree</i>		
<u>Summer Semester</u>		<u>Credit Hours</u>
SDV 100	Fundamentals of College Study	1
<u>Fall 1 Semester</u>		
CON 110	Reading Blueprints and Schematics	3
EMS 100	Basic Emergency Preparedness	1
INT 101	Safety	1
INT 102	Workplace Effectiveness	1
INT 105	System Operations <i>or</i>	4
ENV 105	Introduction to Renewable Energy and Careers	
INT 115	Equipment Handling and Tools	4
ENG 101	Fundamentals of English	3
<u>Spring 1 Semester</u>		
ELE 101	Principles of Electricity	4
INT 130	Machines and Mechanical Drives	4
MTH 102	Mathematical Applications	3
WLD 105	Gas and Arc Welding	3
GEN ED	Social/Behavioral Science Requirement	3
<u>Fall 2 Semester</u>		
ELE 170	Industrial Controls	4
ELE 240	Robot I: Setup and Programming	3
ENG 151	Fundamentals of English II	3
GEN ED	Environmental/Physical Science Requirement	4
<u>Spring 2 Semester</u>		
ELE 230	Troubleshoot Electro-Mechanical Systems	4
ELE 245	Robot II: Programming	2
COM 200	Interpersonal Communication	3
INT 260	Field Experience	2
		60

Emergency Medical Services Courses:

EMS 100 – Basic Emergency Preparedness

This course covers the theory and techniques for basic emergency care. Students will demonstrate knowledge of and perform basic life support cardiopulmonary

resuscitation, AED application, choking prevention, and stop the bleed techniques necessary to provide care in emergency situations. Emergency preparedness for catastrophic events is also discussed.

Trades Courses:

CON 110 - Reading Blueprints and Schematics

This course is designed to introduce common technical drawing formats used to represent designs and plans for mechanical, construction and electronics applications. Topics include orthographic projection, terminology, dimensioning, symbols, working to scales, schedules, material list and details, pictorial representation and basic parallel projection drafting techniques. Activities require reading and interpreting blueprints commonly used in the mechanical, construction and electronics industries. Prerequisite(s): MTH 091 with a grade of "C" or better or an acceptable mathematics placement test score.

ELE 101 Principles of Electricity

This course introduces the fundamental concept of electricity, including direct current (DC), voltage, power, resistance, inductance, and capacitance. The application of Ohm's law, network analysis and electrical measurement are stressed. Students are introduced to the operation of electric motors. Lecture Hours: 39. Laboratory Hours: 26. Prerequisite(s): MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

ELE - 170 - Industrial Controls

This course covers AC and DC electric motors, motor performance measurement, manual motor starters; control transformers; basic control, reversing motor, sequence, and timer circuits; magnetic motor control; and component-level and systems-level troubleshooting. Prerequisite(s): ELE 101 with a grade of "C" or better

ELE – 230 – Troubleshoot Electro-Mechanical Systems

This course covers relay control, event sequencing, time-based sequencing, inductive, capacitive, magnetic reed, hall effect, and photoelectric sensors and their applications. Examples of topics include how to manually override a solenoid-operated directional control valve, the operation of a limit switch in an event sequencing circuit, the function of a time-delay relay in time-driven sequencing, the operation of transistors used in electronic sensors, characteristics that affect capacitive proximity sensor operation, the operation of a magnetic reed switch, soldering and how to design a relay circuit that senses a web of material. Prerequisite(s): ELE 170 with a grade of "C" or better

ELE – 240 – Robot I: Setup and Programming

This course introduces the student to robotic axes, movement control, and navigating the teach pendant. Robotic frames and basic programming commands such as conditional branching and wait and call instructions are addressed. The tasks that an operator, technician, engineer, or programmer needs to setup, record and/or troubleshoot programs are covered. Prerequisite(s): ELE 101 with a grade of "C" or better.

ELE – 245 – Robot II: Programming

This course covers the basic tasks and procedures required for an operator, technician, engineer, or programmer to set up, teach, test, and modify iRVision applications. Upon successful completion of this course, the student can identify the components of a vision system, install vision hardware, develop an application, program the robot, perform error recovery procedures and follow recommended safety practices. Prerequisite(s): ELE 240 with a grade of "C" or better.

ENV 105 Introduction to Renewable Energy and Careers

This course engages the learner in small wind and solar technologies. The course introduces a broad range of basic concepts in solar energy and technology, including photovoltaic and thermal solar systems. Learners explore how to translate location, sun, and technology into practical applications. Covers types of solar energy systems, AC & DC photovoltaic systems, solar industry overview, passive and active water heating, space heating and cooling, solar irradiance, peak sun, global positioning, solar time, sun path, array orientation and insolation data. Also, introduces wind energy as an important source of power that is growing dramatically. MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

INT 101 – Safety

This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

INT 102 – Workplace Effectiveness

This course introduces advanced manufacturing through study of the technologies, processes, performance objectives, and personnel employed in modern manufacturing. Includes examination of technologies and machines used in manufacturing. Students learn how to calculate critical performance objectives, as well as common physical plant layouts and the typical organization of manufacturing personnel and their responsibilities. Working in groups and conflict resolution are also topics in this course. Industry communication skills and barriers to effective communication and types of communication to use in various situations are addressed. Prerequisite(s): MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

INT 105 – System Operations

This course covers machine operation, machine monitoring and documentation, troubleshooting techniques, and total productive maintenance (TPM). Examples of topics within this course include: the function of a Basic Human Machine Interface (HMI); how to issue, interpret, and resolve a maintenance work order; the types of fluid power test instruments and their applications; and methods of eliminating breakdown losses. The course also covers a wide range of advanced manufacturing topics including safety, basic hand tools, measurement, print reading, and the fundamentals of mechanical, fluid power, electrical, and

automation. The course prepares students for Manufacturing Skills Standards Council (MSSC) Certified Production Technician. Prerequisite(s): MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

INT 115 – Equipment Handling and Tools

This course covers: bolt and machine screw installation, basic component, precision component, and non-threaded component assembly; clamping and locking devices; power assembly; and component contamination and handling. Rigging concepts such as rigging concepts, lifting devices, and wire rope and chain slings, synthetic slings, equipment movement, and industrial cranes. Prerequisite(s): MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

INT - 130 - Machines and Mechanical Drives

This course covers: mechanical power transmission; machine installation; performance measurement; measurement tools, basic shaft alignment; and a variety of mechanical drive methods. Topics include six rules of safe dress for working with power transmission equipment, using fasteners to attach a motor mount to a bed-plate, methods of loading a mechanical drive system, methods of mounting a shaft bearing, installing, and aligning a v-belt drive, operating a single-strand roller chain drive, the function of a right-angle gear drive system, lubrication systems, aligning a sleeve coupling, shaft alignment and troubleshooting. Lecture Hours: 26. Lab Hours: 39. Prerequisite(s): MTH 092 with a grade of "C" or better or an acceptable mathematics placement test score.

INT 260 Field Experience

In order to obtain an actual training experience, the student secures or is placed in an approved position relevant to his or her area of emphasis. The student is required to develop, in cooperation with the instructor and field supervisor, a learning contract for the field experience. Supervision and grading of the training experience are provided by both the instructor and the field supervisor. Field Experience Hours: 100. Prerequisite(s): INT 130 or WLD 110 with a grade of "C" or better and permission of the department head.

WLD 105 Gas and Arc Welding

This course covers the basic principles and practices of oxyacetylene welding, cutting, and electric arc welding. Emphasis is placed on utilizing fundamental position welding and safety procedures. Hours 26 lecture 39 Lab. Prerequisite ENG 095 or ENG 097 and MTH 091, or acceptable reading and mathematics placement test scores.

G.5. General Education requirements:

In accordance with COMAR, General Education Requirements for Public Institutions AAS degrees are required to include at least 18 semester hours of general education. The following courses provide a minimum of 19 semester hours of general education.

COM 200 Interpersonal Communication

This course offers an introduction to the theories of interpersonal communication, focusing on the development of an awareness of communication in social and professional contexts and on the perception of self and others. The course covers theory and the application of communication strategies used in daily interactions and one-on-one and small group communication, including how verbal and nonverbal communication can be used to improve relationships. Prerequisite(s): ENG 101 with a grade of "C" or better.

ENG 101 Fundamentals of English I

This course is designed to help students develop their college-level writing skills with an emphasis on the writing process. This course includes an introduction to research skills. Students write summary assignments and a series of essays in various modes, culminating in an argumentative research paper. Students must earn a grade of "C" or better in this course in order to enroll in ENG 151. Prerequisite(s): ENG 095 and ENG 096, or ENG 097, with grades of "C" or better, or acceptable reading and writing placement test scores.

ENG 151 - Fundamentals of English II (3 Credits)

This course continues to help students develop their college-level writing skills. Students are introduced to the study of literature (prose, poetry, fiction and drama). Students integrate outside sources with their own ideas in written arguments. They also refine their research and documentation skills. Lecture Hours: 39. Prerequisite(s): ENG 101 with a grade of "C" or better. Usually offered in the fall, spring and summer.

MTH 102 Mathematical Applications

Students develop the ability to reason with quantitative information through the study of the principles of reasoning, numbering sense, probability and statistical reasoning, and mathematical modeling. This liberal arts course develops mathematical ideas that students encounter in college and career settings. Prerequisite(s): ENG 095 or ENG 097 and MTH 092 with grades of "C" or better or acceptable reading and mathematics placement test scores.

GEN ED Social/Behavioral Science Requirement

GEN ED Environmental/Physical Science Requirement

The following course is a requirement for all students, but is not in the college's General Education core requirement:

SDV 100 – Fundamentals of College Study [not a General Education core requirement]

G.6. Specialized Accreditation

Though a specialized accreditation will not be pursued for Electro-Mechanical Technologies AAS degree program, the standards and course outcomes will prepare students for the NIMS Industrial Maintenance Technician.

G.7. Contracts with other Institutions

N/A

G.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.

Wor-Wic Community College documents the curricula requirements for all programs in the annual college catalog. In addition to curricula, the program's learning objectives are also documented in the catalog along with each course description. Consistent with standard college catalog practices, the catalog includes the academic calendar, college admissions process and requirements, tuitions and fee schedule, financial aid and loans process, student advisement and academic standards and processes for student grievance and complaints. Current and past college catalogs are accessible on the Wor-Wic Community College website.

H. Adequacy of Articulation

Transferability to Maryland 4-year institutions is under review. College faculty are searching for opportunities to allow students to transfer the full 60 semester hours of the Electro-Mechanical Technologies AAS towards a baccalaureate degree.

Wor-Wic Community College has articulation agreements with each of the three county school systems within the college's service area and universities in the region. Articulations with each county school systems are on a course-by-courses basis and are reviewed annually during a joint meeting with faculty from Wor-Wic Community College and faculty from the three county school systems: Somerset County Public Schools, Wicomico County Public Schools, and Worcester County Public Schools.

All three technical high schools, Wicomico County Career Technical High School at Parkside High School, and Worcester Technical High School, currently offer some similar coursework within the Electro-Mechanical Technologies, AAS degree program as a career technical education cluster in each of the high school's available programs to students. Each technical high school has related programs that may provide opportunities for articulation. Articulation agreements for high school students transferring to Wor-Wic Community College will be reviewed during the annual meeting for articulation opportunities.

I. Adequacy of Faculty Resources

I.1 Faculty Summary

A full-time department head/faculty has been hired by Wor-Wic Community College with the work experience and training required to teach Construction, Industrial, and Electrical Technology courses. A full-time faculty with an engineering and cybersecurity expertise has been teaching at Wor-Wic Community College for three years who also with the work experience and training required to teach Construction, Industrial Technology, Electrical Technology courses. Part-time faculty will be used to teach the welding course, as well as current instructors in the non-credit division who teach these subject areas and meet the requirements to teach college credit courses will be invited to apply for teaching positions.

Faculty Member	Faculty Rank	Degrees	Work Experience	Full or Part-time	Courses
Joe Roche	Instructor	BS, Engineering Technology, skill trade where electro-mechanical system installation and troubleshooting skills are used	20+ years of experience in an Engineering, Engineering Technology, skill trade	FT	ELE, INT
Kevin Justice	Instructor	BS, Electrical Engineering	20+ years of experience in an Engineering, Engineering Technology	FT	ELE, INT
TBD	Instructor	AWS Certification	5+ years of experience as a welder, cutter, solderer, or brazer	PT	WLD

I.2. Ongoing pedagogy training for faculty

a. Pedagogy that meets the needs of the students

Wor-Wic Community College coordinates a professional development day for faculty. Topics scheduled for the professional development day are based around current and relevant teaching topics and best practices. Faculty are encouraged to participate in discipline specific professional development, and eligible faculty can apply for college and grant funds for additional professional development opportunities.

b. The learning management system

Wor-Wic Community College adopted Blackboard for the college's learning management system. All faculty are required to use Blackboard class shells for each of their class sections. The shells are prepared through an automated process based on class sections that are scheduled for the semester. Faculty have access to class shells prior to the semester which provides them access to upload class syllabi and configure the online gradebook. Blackboard training and support is provided by the college's Instructional Technologist. The technologist also prepares instructional videos and provides additional instruction during faculty professional development sessions.

c. Evidenced-based best practices for distance education if distance education is offered.

Wor-Wic Community College is increasing the number of courses which are scheduled using the online modality. Courses are required to be approved for online scheduling by the Distance Education Committee which is comprised of faculty, deans, the Instructional Technologist, and the Instructional Designer. Online courses are evaluated and assessed by using the Quality Matters methodology in which department peers participate in the course review process.

J. Adequacy of Library Resources

Wor-Wic Community College utilizes electronic resources for the college library that are accessible both on and off campus. The Electro-Mechanical Technologies, AAS degree program will not require additional library or reference resources. In addition to the Wor-Wic Community College online library, current students have access to the libraries at Salisbury University and the University of Maryland Eastern Shore. Both libraries are traditional libraries with both electronic and physical resources.

K. Adequacy of Physical Resources, Infrastructure, and Instructional Equipment

K.1. Physical facilities, infrastructure, and instructional equipment

Wor-Wic Community College was approved to construct a new building on campus which was named “The Guerrieri Technology Center (GTC)” during the pre-construction and construction phases of the building. When the building is opened for operations, the building name will be changed in honor of a key donor who provided both equipment and student financial support for the programs utilizing the applied technology and welding labs. The building will contain an industrial and welding technology lab containing training equipment for Industrial Technology subjects and concepts. The building is planned to open during the summer of 2023 for fall 2023 instruction.

Equipment identified for the GTC Industrial Technology lab include:

Amatrol Mechanical Drives, Laser Alignment, Portable Measuring, Amatrol T7017A AC/DC Electrical Learning System, Amatrol 85-MT5_Electric Motor Control Learning System, Amatrol 85 MT2 Basic Electrical Machines and Motor Troubleshooting Learning System, Amatrol 85-SN1 Sensor Technology Training System Module, 90-EC1A Electrical Relay Control Learning System, 850-MT6B Electrical Wiring Learning System, 85-MT6BA VFD-PLC Wiring Learning System add on to 850-MT6B, 85-MT6BB Industrial Soldering Learning System, Rigging equipment for lifting and equipment handling.
Amatrol Skills Boss for manufacturing and Skills Boss Logistics systems for teaching distribution and manufacturing processes, system operations, and maintenance concepts.
Amatrol Alternative Energy Learning System 850-AEC, 950-SPF1 Solar PV Installation, and 950-MPF1 Mechanical Fabrication Learning System.
Fanuc FENCELESS LR Mate 200iD articulating robot arm
Computer welding simulators, filtered exhaust ventilated welding booths with tables, positioners and screens, Booth mounted welding table- mounts side to side- all brick surface, Metal cutting and grinding equipment and tools with dust collection, Weld tester, TiG welding sets

K.2. Distance Education Assurances

To support distance education and off-campus access to college and class resources, Wor-Wic Community College students receive log-on access to the college’s myWor-Wic portal. The myWor-Wic portal provides access to Blackboard learning management system, an email account, electronic library resources and student registration information. Students who register for online scheduled courses are required to complete a mandatory Blackboard tutorial which includes an assessment prior to accessing course material.

L. Adequacy of Financial Resources.

L.1. Table 1 – Resources and Narrative Rationale

The Electro-Mechanical Technologies, AAS degree program will attract more part-time students than full-time students due to eligible students working in their career trade during daytime hours. However, there will be a small number of students who will be able to attend in a full-time capacity while they are attending night-time training classes for their career trade or whose schedules will allow them to enroll in 12 - 15 credits each semester. Future tuition and fees for each year are calculated at the rate of a 3% increase from the previous year’s tuition and fees.

TABLE 1: RESOURCES				
Resource Categories	Year 1	Year 2	Year 3	Year 4
1. Reallocated funds	0	0	0	0
2. Tuition/Fee Revenue (c + g below)	\$ 84,540.00	\$ 149,656.00	\$ 153,592.00	\$ 157,528.00
a. Number of F/T students	16	16	16	16
b. Annual tuition/fee rate	\$4,120.00	\$4,216.00	\$4,312.00	\$4,408.00
c. Total F/T revenue (a * b)	\$ 65,920	\$ 67,456	\$ 68,992	\$ 70,528
d. Number of P/T students	4	10	10	10
e. Credit hour rate	\$133.00	\$137.00	\$141.00	\$145.00
f. Annual credit hour	35	60	60	60
g. Total P/T revenue (d * e * f)	\$ 18,620.00	\$ 82,200.00	\$ 84,600.00	\$ 87,000.00
3. Grants, Contracts & other external sources	0	0	0	0
4. Other Sources	0	0	0	0
TOTAL (Add 1 - 4)	\$ 84,540.00	\$ 149,656.00	\$ 153,592.00	\$ 157,528.00

L.2. Table 2 – Program Expenditures and Narrative Rationale

The Electro-Mechanical Technologies, AAS degree program will rely on full-time and part-time faculty for instruction. The department head, department administrative associate and building lab technician will provide oversight and assistance for the Electro-Mechanical Technologies, AAS degree program along with other applied

technology programs offered by the department. These positions will be funded through the college's operational budget. The department head would receive an additional 0.5 workload credit for supervising the new program which is in accordance with the Wor-Wic Community College Policy and Procedures Manual. The equipment costs have been identified through Form G submitted to the state for the new building. Additional funding for equipment may be obtained through the college's foundation.

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b + c below)	\$30,585.08	\$31,502.62	\$32,447.70	\$33,421.14	\$34,423.77
a. #FTE	0	0	0	0	0
b. Total salary	\$28,411.59	\$29,263.93	\$30,141.85	\$31,046.11	\$31,977.49
c. Total benefits	\$2,173.49	\$2,238.69	\$2,305.85	\$2,375.03	\$2,446.28
2. Admin. staff (b + c below)	0	0	0	0	0
a. #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. #FTE	0	0	0	0	0
b. Total salary	0	0	0	0	0
c. Total benefits	0	0	0	0	0
4. 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)	\$30,585.08	\$31,502.62	\$32,447.70	\$33,421.14	\$34,423.77

M. Adequacy of provisions for evaluation of program

M.1. Evaluation Procedures – Courses, Faculty, Student Learning Outcomes

In accordance with the Wor-Wic Community College's PPM; academic programs, courses and faculty are reviewed/assessed annually on the student learning outcomes (SLOs) which result from annual assessment activities. The standard benchmark for courses is a 70% pass rate for course objectives on the end of semester final exam. In the department heads' annual program reports, plans of action are developed for the upcoming year to address steps of improvement when benchmarks are not met. The plans of action are reviewed, and updates are prepared twice during the upcoming year: 6 months and 1 year. Both the dean for the program's division and the Vice President for Academic Affairs prepares responses to the department head's annual reports.

Part-time faculty members are evaluated by the department head and the evaluations include classroom observations as needed, as well as student input. Online surveys requesting the opinions of students are distributed at the end of each semester. The survey results are returned directly to the vice president for academic affairs, who provides each faculty member, the department head and dean with a compilation of the student surveys.

Students enrolled in a new part-time faculty member's first semester of teaching receives an abbreviated survey at the midterm point of the semester and the survey results are returned directly to the faculty member, who submits a summary of these surveys to the dean and the vice president for academic affairs.

M.2. Evaluation of Proposed Program's Effectiveness

In accordance with Wor-Wic Community College's Assessment policies and procedures, all programs and courses are reviewed annually to validate the status with meeting objectives and outcomes. Department heads prepare annual reports on the successes, challenges, and achievements. Programs are also reviewed using a standard program review process every five years.

N. Consistency with the State's Minority Student Achievement Goals

Per Wor-Wic Community College's policies and procedures, the college has a standing Cultural Diversity committee consisting of representation from students, faculty, college staff and administrators. The committee is responsible for annually reviewing the Cultural Diversity Plan and scheduling events for the college community.

The Cultural Diversity Plan states: "Wor-Wic Community College is committed to a plan of cultural diversity that promotes inclusivity of diverse students and employees. The college has created a welcoming atmosphere on campus and has infused cultural diversity in all college programs, services, and communications. The college has demonstrated this commitment to cultural diversity through its vision, values, mission, and goals stated in the institutional strategic plan. The strategic plan of the college is in alignment with the diversity goals of the Maryland State Plan for Postsecondary Education, including implementation strategies and timelines for meeting the goals."

Wor-Wic's student body represents a wide array of diversity with 40 percent of the students identified as non-white. Wor-Wic exceeds the average of non-white residents in the service region, as 31.8% of the population identify as non-white in this area.

O. Relationship of Low Productivity Programs

N/A

P. Adequacy of Distance Education Programs

The Electro-Mechanical Technologies, AAS degree program will benefit from the multiple General Education courses required in the program which are scheduled in both in-person traditional instruction modality and online instruction modality. Lecture portions of lab courses will be evaluated for online delivery to support scheduling these courses as hybrid instruction modality, and courses that are lecture only courses will be evaluated for online and hybrid instruction modalities. Wor-Wic Community College complies with the Middle States Commission on Higher Education and Maryland Higher Education Commission (MHEC) requirements for offering distance education programs and courses.