*Alabama Commission on Higher Education*

**PROPOSAL FOR A NEW DEGREE PROGRAM**

1. **Date of Proposal Submission:** September 10, 2021

**Full program name and level:** *Associate of Science in Mechatronics*

**CIP Code:** *15.0613*

1. **Learning Outcomes and Program Review:**

Succinctly list at least four (4) but no more than seven (7) of the most prominent student learning outcomes of the program.

Upon completion of the program, students will be able to:

1. Use the knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve well-defined problems related to mechatronics.
2. Communicate through written, oral, and/or graphical mediums.
3. Identify and use appropriate technical literature.
4. Conduct standard tests, measurements, and experiments.
5. **Employment Outcomes and Program Demand**

Indicate the primary industry where graduates would seek employment using the North American Industry Classification System (NAICS): <https://www.naics.com/search/>

NAICS Code:

3363: “Motor Vehicle Parts Manufacturing”

3364: “Aerospace Product and Parts Manufacturing”

3261: “Plastics Product Manufacturing”

3336: “Engine, Turbine, and Power Transmission Equipment Manufacturing”

3339: “Other General Purpose Machinery Manufacturing”

Select at least one and up to three Standard Occupational Codes (SOCs) where graduates of the new program would seek employment: <https://www.bls.gov/soc/2018/major_groups.htm>

SOC 1: 17-3023: “Electrical and Electronic Engineering Technologists and Technicians”

SOC 2: 17-3024: “Electro-Mechanical and Mechatronics Technologists and Technicians”

SOC 3: 51-2028: “Electrical, Electronic, & Electromechanical Assemblers”

Please explain whether further education/ training is required for graduates of the proposed program to gain entry-level employment in the occupations you have selected.

No additional education or training is required for program graduates to gain entry-level employment in the specified occupations.

Please describe how you will determine whether graduates are successful in obtaining relevant employment or pursuing further study.

Employment data will be collected from program graduates through an exit survey at the time of their graduation. For any graduates who are not employed (or do not have an offer of employment) at the time of graduation, an annual follow-up survey will be sent.

Briefly describe how the program fulfills a specific industry or employment need for the State of Alabama. Please refer to the State’s “In-Demand Occupations List” (see [ACHE’s Academic Program](https://ache.edu/Instruction.aspx) page for most recent list) or include local and statewide occupational projections, along with data sources as appropriate.

According to the State’s “In-Demand Occupations List” for **Region 1**[[1]](#footnote-1), there are 4,190 current positions in north Alabama related to “Electrical, Electronic, & Electromechanical Assemblers” (SOC 51-2028) and “Electrical & Electronics Engineering Technicians” (SOC 17-3023). An estimated 560 positions are open each year with average annual salaries ranging from $30,089 to $55,950.

Although the U.S. Bureau of Labor Statistics anticipates a decline in manufacturing jobs nationally from 2019-2029[[2]](#footnote-2), our region has seen significant job gains in this sector. As noted by the Shoals Economic Development Authority[[3]](#footnote-3), the area is “rapidly expanding and becoming the new epicenter of the automotive industry of America.” In fact, according to the U.S. Bureau of Labor Statistics[[4]](#footnote-4), as of May 2020 the Florence-Muscle Shoals metropolitan area has the highest concentration of jobs and location quotients in Electrical, Electronic, and Electromechanical Assemblers (except coil winders, tapers, and finishers) in the country. The proposed A.S. in Mechatronics degree will enhance employers’ ability to hire highly qualified individuals and upskill their existing employees, further strengthening the Shoals as a leader in the automotive supplier/manufacturer sector. Additionally, with the passage of the Alabama Incentives Modernization Act (Act 2019—392)[[5]](#footnote-5), the state is poised to attract even more technology-based employers who would benefit from having a skilled workforce available to them.

Briefly describe evidence of student demand for the program, including enrollments in related coursework at your institution if applicable. If a survey of student interest was conducted, please briefly describe the survey instrument, number and percentage of respondents, and summary of results.

An online student interest survey was administered through Qualtrics web-based software from August 9-27, 2021, to local high school students and employees of local businesses in the industry. One hundred and seventy-seven (n = 177) individuals participated in the survey. Almost 78% (n = 138) of respondents indicated that they would be interested in pursuing an Associate’s degree at UNA, with a similar percentage responding that earning an Associate degree would assist them in performing their current job (or one for which they are preparing). Eighty-eight percent (88%; n = 149) of respondents indicated that earning an Associate’s degree would improve their prospects for career advancement and promotion in their field. UNA offers a B.S. in Engineering Technology that has seen almost 10% growth over the last three years (105 majors as of fall 2021).

1. **Curriculum and Prerequisites**

Program Completion Requirements: (Enter a credit hour value for all applicable components, write N/A if not applicable)

Credit hours required in program courses 31-34

Credit hours in general education or core curriculum 31

Credit hours required in support courses 0

Credit hours in required or free electives 0

Credit hours in required research 0

**Total credit hours required for completion** **62-65\_\_\_\_**

Please indicate the maximum number of credits that can be transferred in from another institution and applied to the program:

Per SACSCOC standards and UNA policy, students must complete a minimum of 25% of their coursework at the institution granting the degree. Associate of Science degree-seeking students may transfer up to 75% of their coursework from an accredited institution towards this degree program, pending approval by program faculty.

Please describe any work-based learning (WBL) activities that are required or recommended for program completion (including internships, practical/clinical experience, applied research, or other immersive experiences designed to prepare graduates for employment in the field). Definitions and examples of different types of WBL are available at <https://www.alapprentice.org/>.

Although not a requirement for program completion, students in the program are strongly encouraged to participate in internships and/or cooperative educational programs in program-related roles with regional industries. An internship/co-op course may be used to document the students’ participation on their academic transcript.

Does the program include any options/concentrations? If so, please describe the purpose and rationale for the options, and list the courses for each in the table below.

The Associate of Science degree in Mechatronics is designed to provide graduates with in-depth, state-of-the-art training in the field while allowing the flexibility to choose areas of concentration that match each student's career needs. The degree will be composed of a series of stackable certificates. Students completing the degree are required to meet all general education requirements (see table), which will earn them a *General Education Short-Term Certificate*. Additionally, students must complete **two** out of the three certificates described below.

The required core courses provide the foundational skills and knowledge that are necessary and applicable to all of the certificate areas and career paths in Mechatronics. Students completing the core technical courses will acquire knowledge and skills in industrial safety, industrial instrumentation and measurements, and the fundamentals of both AC and DC industrial electrical components and processes. These courses will prepare students for entry-level jobs as electrical technicians in manufacturing environments. Completion of the core technical courses will help prepare students to earn industry certification in Industrial Electricity offered by PMMI.

Core program courses (required for each certificate option – 11 credit hours):

* MEC 101 – Industrial Safety [3 credit hours]
* MEC 110 – Instrumentation and Industrial Measurement [4 credit hours]
* MEC 140 – AC and DC Fundamentals and Circuits [4 credit hours]

**Certificate #1: Controls Systems (11 credit hours + Core program courses = 22 credit hours)**

* MEC 210 – Programmable Logic Controllers [4 credit hours]
* MEC 240 – Industrial Process Control [3 credit hours]
* MEC 270 – Advanced Programmable Logic Controllers [4 credit hours]

The Controls Systems certificate focuses on the components, systems, and operations that are used to control modern automated manufacturing equipment with a focus on Programmable Logic Controllers (PLCs). Students completing this certificate will acquire knowledge and skills in the components, systems, set-up, operation, and troubleshooting of controllers including PLCs. These courses will prepare students for entry-level jobs as control or automation technicians in manufacturing environments. Completion of this certificate will help prepare students to earn industry certification in Programmable Logic Controllers offered by PMMI.

**Certificate #2: Mechanical Systems (12 credit hours + Core program courses = 23 credit hours)**

* MEC 160 – Industrial Hydraulics and Pneumatics [4 credit hours]
* MEC 220 – Electric Motors and Controls [4 credit hours]
* MEC 260 – Robotics [4 credit hours]

The Mechanical Systems certificate focuses on the components, systems, and operations of the equipment performing the work in modern automated manufacturing environments. Students completing this certificate will acquire knowledge and skills in the components, systems, set-up, operation, and troubleshooting of hydraulic/pneumatic circuits as well as electric motors. These courses will prepare students for entry-level jobs as mechanical or automation technicians in manufacturing environments. Completion of this certificate will help prepare students to earn industry certification in Fluid Power and Motor and Motor Controls offered by PMMI.

**Certificate #3: Systems Operations (9 credit hours + Core program courses = 20 credit hours)**

* ET 200 – Manufacturing Processes [3 credit hours]
* MEC 230 – Preventive Maintenance [3 credit hours]
* MEC 280 – Industrial Quality Control [3 credit hours]

The Systems Operations certificate exposes students to the variety of modern automated manufacturing systems across different industries while focusing on applications of maintenance and quality control in manufacturing. Students completing this certificate will acquire knowledge and skills in process evaluation, statistical process control, documentation, continuous improvement, lean manufacturing, procedures, and predictive and preventive maintenance processes. These courses will prepare students for entry-level jobs as operations technicians in manufacturing environments.

Completion of the *General Education Short-term Certificate* requirements (31 credit hours) and the corresponding certificates identified below, yields the following[[6]](#footnote-6):

Certificate #1 & Certificate #2 = 65 credit hours

Certificate #1 & Certificate #3 = 62 credit hours

Certificate #2 & Certificate #3 = 63 credit hours

Please complete the table below indicating all coursework for the proposed program, specifying any new courses developed for the program, along with courses associated with each option as applicable. Include the course number, and number of credits. Coursework listed should total the number of hours required to complete the program.

|  |  |  |  |
| --- | --- | --- | --- |
| Course Number and Title | Number of Credit Hours | \* If New Course | Requirement |
| EN 111 – First Year Composition I | 3 |  | Gen Ed |
| EN 112 – First Year Composition II | 3 |  | Gen Ed |
| COM 201 – Fundamentals of Speech | 3 |  | Gen Ed |
| Literature elective | 3 |  | Gen Ed |
| PHL 205 – Ethics ***or*** PHL 250 – Business Ethics | 3 |  | Gen Ed |
| MA 112 – College Algebra | 3 |  | Gen Ed |
| Natural Science elective (with lab)a | 4 |  | Gen Ed |
| Social and Behavioral Science elective | 3 |  | Gen Ed |
| Social and Behavioral Science elective | 3 |  | Gen Ed |
| Social and Behavioral Science elective | 3 |  | Gen Ed |
| MEC 101 – Industrial Safety | 3 | \* | Major Core |
| MEC 110 – Instrumentation and Industrial Measurement | 4 | \* | Major Core |
| MEC 140 – AC and DC Fundamentals and Circuits | 4 | \* | Major Core |
| MEC 210 – Programmable Logic Controllers | 4 | \* | Cert. #1 |
| MEC 240 – Industrial Process Control | 3 | \* | Cert. #1 |
| MEC 270 – Advanced Programmable Logic Controllers | 4 | \* | Cert. #1 |
| MEC 160 – Industrial Hydraulics and Pneumatics | 4 | \* | Cert. #2 |
| MEC 220 – Electric Motors and Controls | 4 | \* | Cert. #2 |
| MEC 260 – Robotics | 4 | \* | Cert. #2 |
| ET 200 – Manufacturing Processes | 3 |  | Cert. #3 |
| MEC 230 – Preventive Maintenance | 3 | \* | Cert. #3 |
| MEC 280 – Industrial Quality Control | 3 | \* | Cert. #3 |

a Chemistry 111/L – General Chemistry recommended

Intended program duration in semesters for full-time students:Four to Five

Intended program duration in semesters for part-time students: Eight

Please indicate any prior education or work experience required for acceptance into the program:

There are no special admission requirements for the Associate of Science in Mechatronics degree other than the normal UNA admissions requirements.

Describe any other special requirements for the program:

There are no other special requirements for this program.

1. **Specific Rationale (Strengths) for Program**

What is the specific rationale for recommending approval of this proposal? List 3-5 potential program strengths.

1. As *Alabama’s Workforce Development University,* this program is directly aligned with UNA’s focus on developing career-ready graduates to meet the economic needs of Alabama.
2. The development of this program is the result of direct conversations with business and manufacturing leaders focused on meeting the current and future needs of the region.
3. The A.S. curriculum will provide specialized coursework and include industry-recognized certification (e.g., PMMI) that demonstrates students are prepared to successfully enter employment in the field upon graduation.
4. The A.S. degree is in alignment with the development of the new Lauderdale County Agricultural Events Center. The complex will include a Workforce Development Center as well as an Innovation Center that will serve as a state-of-the-art career technical center for Lauderdale County schools – with the potential for dual-enrollment classes with neighboring school districts.

Please list any external entities that have supplied letters of support attesting to the program’s strengths, and attach letters with the proposal.

Letters of support from the following entities are included in Appendix B[[7]](#footnote-7).

1. Alabama Senator Tim Melson
2. Allen Thornton Career Technical Center
3. Constellium
4. Essity Professional Hygiene – North America
5. Florence City School District
6. LSB Industries
7. Muscle Shoals City School District
8. North American Lighting
9. Project XYZ
10. Shoals Economic Development Authority
11. **Program Resource Requirements**

**A. Faculty.** Please provide or attach a brief summary of primary and support faculty that includes their qualifications specific to the program proposal. Note: Institutions must maintain and have current and additional primary and support faculty curriculum vitae available upon ACHE request for as long as the program is active, but you do not need to submit CVs with this proposal.

**Dongqing Pan, PhD** – Dr. Dongqing Pan received his Ph.D. in Mechanical Engineering from the University of Wisconsin-Milwaukee in 2016 and his master’s degree from Harbin Institute of Technology in 2009. He is an assistant professor in the Department Engineering and Technology at the University of North Alabama as well as the coordinator for the Mechanical Engineering Lab. He has three years of industrial experience at two multinational engineering companies, including as a Mechatronics Engineer at Sandvik Mining and Construction. He has practical knowledge and expertise in mechanical system design, 3D modeling, manufacturing processes, and engineering project management. Dr. Pan also has more than eight years of combined teaching experience at the University of Wisconsin-Milwaukee and the University of North Alabama. His current research interests are centered in Atomic Layer Deposition (ALD), thin film fabrication, ALD system design, prototyping and optimization, and reactive thermal-fluid dynamics modeling.

**Ravi Paul Gollapalli, PhD, PE** – Dr. Gollapalli earned his M.S. in Electrical Engineering from the University of South Alabama in 2001 and his Ph.D. in Optical Science & Engineering from the University of Alabama in Huntsville in 2011. He joined the University of North Alabama in 2017 as an Associate Professor of Electrical Engineering as well as the Electrical & Robotics Lab Coordinator in the Department of Engineering & Technology. He is a Senior Member of the Institute of Electrical and Electronic Engineers (IEEE), is the faculty advisor for the IEEE Student chapter at UNA, and maintains a Professional Engineer License in the state of Wyoming. He has more than 12 years of combined teaching and industry experience. His current research focuses on the development of highly-sensitive sensors for detection of biomolecules at ultra-low concentrations. He has also worked with Engineering Technology student groups to convert a gas-powered ATV into a battery powered electric ATV.

Please provide faculty counts for the proposed program:

|  |  |  |
| --- | --- | --- |
| Status | Faculty Type | |
| Primary | Support |
| Current- Full Time | 0 | 2 |
| Current-Part Time | 0 | 0 |
| Additional-Full Time (to be hired) | 2 | 0 |
| Additional-Part Time (to be hired) | TBD | 0 |

Note: Annual compensation costs for additional faculty to be hired should be included in the

NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

Briefly describe the qualifications of new faculty to be hired:

Minimum faculty qualifications for the additional full-time faculty require a bachelor’s degree in the discipline or an associate’s degree and demonstrated competencies in the discipline.

Preferred qualifications: both a bachelor’s and master’s degree in one or more engineering fields related to mechatronics (an undergraduate engineering technology degree specifically in mechatronics is also acceptable provided that the master’s degree is in a related engineering field), industrial experience in a mechatronics-related role, teaching experience in a related field at a post-secondary institution, and industry certifications in mechatronics- and/or manufacturing-related areas.

**B. Staff.** Will the program require dedicated staff? Yes No

X

If so, indicate the number or percentage of FTEs. Salary/ benefits costs should be included in the program summary table below.

Note: Annual compensation costs for staff to be hired should be included in the

NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

1.0 FTE.[[8]](#footnote-8)

**C. Equipment.**Will any special equipment be needed specifically for this program?

X

Yes No

If yes, please list. Their cost should be included in the NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

Please see Appendix A. Costs associated with the initial purchasing of equipment (“Equipment”) and annual replacement and maintenance of equipment/supplies (“Other”) are included in the program summary table.

**D. Facilities.**Will any new facilities be required specifically for the program?

X

Yes No

If yes, please list. Only new facilities need be listed. Their cost should be included in the NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

The A.S. in Mechatronics is in alignment with the establishment of the new Lauderdale County Agricultural Events Center. As *Alabama’s Workforce Development University*, UNA will be serving as a managing partner for the new Lauderdale County Workforce Development Center, a multi-agency educational center that will be adjacent to the Events Center. Additionally, a new Innovation Center will be included at the complex that will serve as a state-of-the-art career technical center for Lauderdale County schools. Delivery of the mechatronics course offerings will occur at this new complex. However, this facility is not a necessity to offer the program, as UNA has existing facilities associated with our B.S. degree in Engineering Technology that would support the A.S. degree program.

**E. Library.** Will additional library resources be required to support the program?

X

Yes No

Please provide a brief description of the current status of the library collections supporting the proposed program.

UNA's collection supporting a Bachelor of Science in Engineering Technology is assessed at the level of 3bE, being a collection that provides resources adequate for imparting and maintaining knowledge about the primary and secondary topics of a subject area. UNA's collection, electronic access, and interlibrary loan possibilities provide excellent resources for this program. The faculty is satisfied with the capability "Science Direct" provides in accessing periodicals, and EBSCO Discovery integrates electronic database and library catalog records in an interface designed for power searching. Finally, the BrowZine capability has an engineering and technology tab which lists and provides access to volumes of periodical titles and the library has provided curriculum relevant books free of charge to assist the faculty in building their discipline specific resources.

If yes, please briefly describe how any deficiencies will be remedied, and include the cost in the NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

Not applicable.

**F. Assistantships/Fellowships.** Will you offer any assistantships specifically for this program?

X

Yes No

If “Yes”, how many assistantships will be offered?

Their cost should be included in the NEW ACADEMIC DEGREE PROGRAM SUMMARY table.

**New Academic Degree Program Summary: Instructions**

* The NEW ACADEMIC DEGREE PROGRAM SUMMARY table is intended to provide a realistic estimate of the costs of the program over the first seven years of implementation and also serves as the basis for post-implementation conditions for new enrollments and completions.
* This should only include only \***the additional costs*\**** that will be incurred after implementation, not to include any current costs. For instance, if new faculty will be hired for the program, new faculty salary/ benefits should be included for each year following implementation, but salary/benefits for existing faculty would not be included.
* Indicate the **\*new\*** sources and amounts of funds available for the program’s support, not to include any current revenues. For instance, if the proposed program will replace an existing program or option, you would only count tuition for additional students over and above the current revenue levels.
* Completion projections **must meet minimum viability requirements** set by §16-5-8(2) of the *Code of Alabama, 1975*:

Associate degree 7.5 graduates per year on average

Baccalaureate degree 7.5 graduates per year on average

Master’s degree 3.75 graduates per year on average

Doctoral degree 2.25 graduates per year on average

* New enrollment projections must be sufficient to ensure that the program will be sustainable over time and meet minimum viability requirements for program graduates. Therefore, new enrollment numbers must exceed completion numbers to account for attrition or enrollment fluctuations.
* Please use the Excel form from ACHE’s Academic Program webpage (<https://ache.edu/Instruction.aspx> under “Forms”  “Program Summary Table”) as the “soft copy” for this section.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY** | | | | | | | | |
| *INSTITUTION: University of North Alabama* | | | | | | | | |
| *PROGRAM: Mechatronics* | | | | | | *Select Level:* | *Associate* | |
| **ESTIMATED \*NEW\* EXPENSES TO IMPLEMENT PROPOSED PROGRAM** | | | | | | | | |
|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | **TOTAL** |
| FACULTY | $72,102[[9]](#footnote-9) | $144,204 | $144,204 | $144,204 | $144,204 | $149,204 | $154,204 | $952,326 |
| STAFF | $11,934[[10]](#footnote-10) | $12,466 | $12,987 | $13,509 | $14,552 | $14,552 | $14,552 | $94,552 |
| EQUIPMENT | $734,969 | 0 | 0 | 0 | 0 | 0 | 0 | $734,969 |
| FACILITIES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIBRARY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ASSISTANTSHIPS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER | 0 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | $2,000 | $12,000 |
| **TOTAL** | **$819,005** | **$158,670** | **$159,191** | **$159,713** | **$160,756** | **$165,756** | **$170,756** | **$1,793,847** |
| **\*NEW\* REVENUES AVAILABLE FOR PROGRAM SUPPORT** | | | | | | | | |
|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | **TOTAL** |
| REALLOCATIONS | $0 | $0 | $0 | $0 | $0 | $0 | $0 | 0 |
| EXTRAMURAL | $750,000 | $0 | $0 | $0 | $0 | $0 | $0 | $750,000 |
| TUITION | $85,200[[11]](#footnote-11) | $151,200 | $174,600 | $195,900 | $217,200 | $227,850 | $259,800 | $1,311,750 |
| **TOTAL** | **$835,200** | **$151,200** | **$174,600** | **$195,900** | **$217,200** | **$227,850** | **$259,800** | **$2,061,750** |
| **ENROLLMENT PROJECTIONS** | | | | | | | | |
| ***Note: “New Enrollment Headcount” is defined as unduplicated counts across years.*** | | | | | | | | |
|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | **AVERAGE** |
| FULL-TIME HEADCOUNT | Year 1 - No data reporting required | 14 | 16 | 18 | 20 | 21 | 24 | 18.83 |
| PART-TIME HEADCOUNT | Year 1 - No data reporting required | 1 | 2 | 2 | 2 | 2 | 2 | 1.83 |
| TOTAL HEADCOUNT | Year 1 - No data reporting required | 15 | 18 | 20 | 22 | 23 | 26 | 20.67 |
| NEW ENROLLMENT HEADCOUNT | Year 1 - No data reporting required | 8 | 9 | 9 | 11 | 11 | 12 | 10 |
| **DEGREE COMPLETION PROJECTIONS** | | | | | | | | |
| ***Note: Do not count Lead “0”s and Lead 0 years in computing the average annual degree completions.*** | | | | | | | | |
|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | **AVERAGE** |
| DEGREE COMPLETION PROJECTIONS | Year 1 - No data reporting required | 6 | 6 | 7 | 8 | 9 | 9 | 7.5 |

**Appendix A**





**Appendix B – Letters of Support**

1. <https://ache.edu/ACHE_Reports/Meetings/Deadlines/2021_SOCs_By_Regions.pdf> [↑](#footnote-ref-1)
2. <https://www.bls.gov/news.release/pdf/ecopro.pdf> [↑](#footnote-ref-2)
3. <https://www.seda-shoals.com/targets/automotive-suppliers> [↑](#footnote-ref-3)
4. <https://www.bls.gov/oes/current/oes512028.htm> [↑](#footnote-ref-4)
5. <https://www.alreporter.com/2019/05/31/legislature-passes-the-alabama-incentives-modernization-act/> [↑](#footnote-ref-5)
6. The core program classes are required as part of each individual certificate. The total credit hours listed below are based on which certificates are completed and only includes the core program course credit hours once (i.e., duplication of core program credit hours are removed). [↑](#footnote-ref-6)
7. The proposed program was initially developed as an Associate of Applied Science degree. All companies/individuals still support the new Associate of Science proposal and therefore updated letters were not requested. [↑](#footnote-ref-7)
8. An administrative assistant will be hired to assist all three A.S. degree programs. One-third of the annual costs associated with this position is included in the program summary. [↑](#footnote-ref-8)
9. One full-time faculty member will be hired for Year 1, with the second full-time faculty member hired a year later. [↑](#footnote-ref-9)
10. Calculated based on 1/3 of the salary and benefits of a full-time administrative assistant to support all A.S. degree programs. [↑](#footnote-ref-10)
11. Calculated based on a flat rate of $4800 per semester for full-time students and $350 per credit hour for part-time students. [↑](#footnote-ref-11)