# Proposal for a New Degree Program

## I. Information and Rationale

### A. Primary Contact Information

Institution: The University of Alabama in Huntsville

Contact: David Puleo, Ph.D.

Title: Provost and Executive Vice President for Academic Affairs

Email: dap0045@uah.edu / provost@uah.edu

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### B. Program Information

Date of Proposal Submission: 2/24/2025

Award Level: Bachelor's Degree

Award Nomenclature (e.g., BS, MBA): B.S.

Field of Study/Program Title: Cyber Operations Technology

CIP Code (6-digit): 11.1003

### C. Implementation Information

Proposed Program Implementation Date: 8/3/2026

Anticipated Date of Approval from Institutional Governing Board: 4/4/2025

Anticipated Date of ACHE Meeting to Vote on Proposal: 9/12/2025

SACSCOC Sub Change Requirement (Notification, Approval, or NA): Approval

Other Considerations for Timing and Approval (e.g., upcoming SACSCOC review):

### D. Specific Rationale (Strengths) for the Program

List 3 – 5 strengths of the proposed program as specific rationale for recommending approval of this proposal.

1. The B.S. in Cyber Operations Technology is a new program that will enhance cybersecurity workforce development in Alabama overall, and also in the southeast USA. The program plan will leverage existing course offerings in cybersecurity and computer science at Alabama community colleges to provide the first two years of a 4-year degree cybersecurity program. The last two years of this cybersecurity program will be offered fully online at UAH. In addition to enhancing the overall cybersecurity workforce in Alabama, this path will enable a pathway for associate degree graduates from Alabama community colleges to a 4-year degree, and therefore greatly enhance their overall career potential.

2. This program is intended to improve workforce development in the areas of system administration and cyber operations in the state of Alabama.

3. The intent is to provide a much-improved workforce for the low-tech areas of Alabama, or for lower tech jobs. The graduates from this program are not intended to be generally competitive for advanced high-tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower-tech cybersecurity and system administration jobs in the Huntsville area, such as at factories.

List external entities (more may be added) that may have supplied letters of support attesting to the program's strengths and attach letters with the proposal at the end of this document.

Letters enclosed in package:

1. Alabama Automotive Manufacturers Association
2. Calhoun Community College
3. Cintel
4. Leidos
5. Mission Multiplier
6. OASYS
7. Tactware

## II. Background with Context

### A. Concise Program Description

Include general opportunities for work-based and/or experiential learning, if applicable.

The B.S. in Cyber Operations Technology prepares students to configure, manage, maintain, and troubleshoot computer and network systems, including assessing and managing cybersecurity devices, systems, and procedures associated with these systems. Students will learn risk assessment, policy analysis, contingency planning, and investigation techniques. Students will learn to identify and investigate cyberattacks such as data breaches and malware infections. The program encompasses instruction in all aspects of computing, including system design, programming, networking, computer architecture, telecommunications, operating systems.

The first two years of courses will be taken at Alabama Community Colleges. The second two years of courses will be offered online by UAH.

**B. Student Learning Outcomes**

List four (4) to seven (7) of the student learning outcomes of the program.

1. Configure, manage, maintain, and troubleshoot complex computer and network systems
2. Assess and manage cybersecurity devices, systems, and procedures associated with these systems.
3. Able to identify and investigate cyberattacks.
4. Communicate effectively in a variety of professional contexts.
5. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
6. Recognize the need for, and an ability to engage in, continuing professional development.

**C. Administration of the Program**

Name of Dean and College: Rainer Steinwandt, Ph.D., College of Science

Name of Department/Division: Computer Science

Name of Chairperson: Letha Etzkorn, Ph.D.

**D. Similar Programs at Other Alabama Public Institutions**

List programs at other Alabama public institutions of the same degree level and the same (or similar) CIP codes. If no similar programs exist within Alabama, list similar programs offered within the 16 SREB states. If the proposed program duplicates, closely resembles, or is similar to any other offerings in the state, provide justification for any potential duplication.

| CIP Code | Degree Title | Institution with Similar Program | Justification for Duplication |
|---|---|---|---|
| 11.1003 | Cybersecurity BA/BS | Troy | Troy's program is a more traditional BS in cybersecurity targeted toward filling advanced cybersecurity jobs in high tech industry. The graduates from this new BS in Cyber Operations Technology program are not intended, as a general thing, to compete for advanced high-tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower tech cybersecurity and system administration jobs in the Huntsville area, such as at factories could employ graduates of this program. Additionally, the focus is even more hands on and technology oriented than a typical Cyber Operations program. |
| 11.1003 | Cybersecurity BS | UA | UA's program is a more traditional BS in cybersecurity targeted toward filling advanced cybersecurity jobs in high tech industry. The graduates from this new BS in Cyber Operations Technology program are not intended, as a general thing, to compete for advanced high-tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower tech cybersecurity and system administration jobs in the Huntsville area, such as at factories could employ graduates of this program. Additionally, the focus is even more hands on and technology oriented than a typical Cyber Operations program. |
| 11.1003 | Cyber Operations, BS | The Citadel, South Carolina | The Citadel's BS in Cyber Operations program is targeted toward the next generation of cyber leaders for high tech systems in industry, government, or military. The graduates from this new BS in Cyber Operations Technology program are not intended, as a general thing, to compete for advanced high-tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower tech cybersecurity and system administration jobs in the Huntsville area, such as at factories could employ graduates of this program. Additionally, the focus is even more hands on and technology oriented than a typical Cyber Operations program. |

## E. Relationship to Existing Programs within the Institution

1. Is the proposed program associated with any existing offerings within the institution, including options within current degree programs? **Yes ☒ No ☐**

   (Note: Most new programs have some relationship to existing offerings, *e.g.*, through shared courses or resources). If yes, complete the following table. If this is a graduate program, list any existing undergraduate programs which are directly or indirectly related. If this is a doctoral program, also list related master's programs.

| Related Degree Program Level | Related Degree Program Title | Explanation of the Relationship Between the Programs |
|---|---|---|
| BS | Computer Science | ADMINISTRATIVE: The chair of the Computer Science (CS) department will be tasked with also managing the BS in Cyber Operations Technology. The CS dept is also in the process of hiring a clinical faculty member in cybersecurity. This clinical faculty member's primary role will be in supporting the BS/MS/PhD programs in Computer Science. However, this clinical faculty member will also help manage the BS in Cyber Operations Technology and serve as a backup instructor in case of problems. However, it is intended that initially the courses in this program will be taught completely by part time instructors from the high tech Huntsville area. If it becomes successful then the expectation is that lecturers and perhaps clinical faculty later will be hired to support it.<br>CURRICULAR: There are several cybersecurity courses in the CS program that have similar names to the courses in the proposed BS in Cyber Operations Technology program. The primary differences are: 1) the BS in Cyber Operations Technology program is intended to be considerably more practically oriented, hands-on, and technology related than the BS in Computer Science (CS). Note that the ABET accreditation of the BS in CS specifically requires concentration on fundamental concepts and skills, rather than focusing narrowly on specific, rapidly changing technologies. For the BS in Cyber Operations Technology program, technologies will be taught heavily to the students, although we do plan to also emphasize that they must learn to teach themselves new technologies. 2) the BS in CS program cybersecurity courses require several additional math courses (Intensive Calculus, Linear Algebra, and Advanced Probability) as prerequisites. The degree plan allows some Computer Science courses to be substituted for Cyber Operations Technology courses, but the reverse is not true, no Cyber Operations Technology courses will be allowed to substitute for CS courses.<br><br>NOTE: These curricular differences also help to differentiate the proposed BS in Cyber Operations Technology from other BS in Cybersecurity programs in the southeast. |
| | | |

2. Will this program replace any existing programs or specializations, options, or concentrations? **Yes ☐ No ☒**

   If yes, please explain.

3. Will the program compete with any current internal offerings? **Yes ☐ No ☒**

   If yes, please explain.

## F. Collaboration

Have collaborations with other institutions or external entities been explored? **Yes ☒ No ☐**

If yes, provide a brief explanation indicating those collaboration plan(s) for the proposed program.

Half of the coursework will be taught at one or more Alabama Community Colleges, a sample set of Alabama Community College courses is as follows:

| COURSES | | Hours |
|---|---|---|
| CIS 134 | IT Fundamentals (CompTIA ITF+) | 3 |
| | | |
| CIS 202 | Python Programming | 3 |
| CIS 251 | C++ Programming | 3 |
| | | |
| CIS 171 | Linux I | 3 |
| | | |
| CIS 270 | Cisco CCNA I | 3 |
| CIS 271 | Cisco CCNA II | 3 |
| CIS 272 | Cisco CCNA III | 3 |
| | | |
| CIS 280 | Network Security CompTIA Security+ | 3 |
| | | |
| CIS 282 | Computer Forensics | 3 |
| | **Total Core** | **27** |
| **1 elective chosen from:** | | 3 |
| CIS 276 Server administration (Must do CYB 461 and CYB 462 at UAH) | | |
| OR | | |
| CIS 267 Enterprise Virtualization (must do CYB 471 and CYB 472 at UAH) | | |
| OR | | |
| internship | | |
| | **Total Hours including elective** | **30** |

An *alternative* set of Alabama community college courses is as follows:

| COURSES | | Hours |
|---|---|---|
| CIS 130 | Intro to Information Systems | 3 |
| | | |
| CIS 202 | Python Programming | 3 |
| CIS 251 | C++ Programming | 3 |
| | | |
| CIS 171 | Linux I | 3 |
| | | |
| CIS 161 | Intro Networking Comm. | 3 |
| CIS 162 | Adv. Net COMPTIA Network+ | 3 |
| CIS 214 | Security Analysis (Pen testing) | 3 |
| | | |
| CIS 260 | Network Security & Risk Management COMPTIA Security+ | 3 |
| | | |
| CIS 282 | Computer Forensics | 3 |
| | **Total Core** | **27** |
| **1 elective chosen from:** | | 3 |
| CIS 277 | Network Services administration (Must complete CYB 461 and CYB 462 at UAH) | |
| OR | | |
| CIS 267 Enterprise Virtualization (must complete CYB 471 and CYB 472 at UAH) | | |
| OR | | |
| internship | | |
| | **Total Hours including elective** | **30** |

Have any collaborations within your institution been explored? **Yes ☒ No ☐**

If yes, provide a brief explanation indicating those collaboration plan(s) for the proposed program.

We discussed this with Computer Engineering and separately with Information Systems, and determined that no collaboration is appropriate with either of those departments.

## G. Specialized Accreditation

1. Will this program have any external accreditation requirements in addition to the institution's SACSCOC program requirements? **Yes ☐ No ☒**

   If yes, list the name(s) of the specialized accrediting organization(s) and the anticipated timeframe of the application process

2. Does your institution intend to pursue any other non-required accrediting organizations for the program?* **Yes ☐ No ☒**

   If yes, list the name(s) of the organization(s) and the purpose of the pursuit.

   If there are plans to pursue non-required external accreditation at a later date, list the name(s) and why the institution is not pursuing them at this time.

**Note: Check *No* to indicate that non-required external accreditation will not be pursued, which requires no explanation.**

## H. Admissions

Will this program have any additional admissions requirements beyond the institution's standard admissions process/policies for this degree level? **Yes ☐ No ☒**

If yes, describe any other special admissions or curricular requirements, including any prior education or work experience required for acceptance into the program.

Most of the students in this program will transfer to UAH from Alabama Community Colleges after 2 years. It is expected that most/many of them will have pursued Associate Degrees in Cybersecurity at their previous community college.

## I. Mode of Delivery

Provide the planned delivery format(s) (*i.e.*, in-person, online, hybrid) of the program as defined in policy along with the planned location(s) at which the program will be delivered (*i.e.*, on-campus and/or at specific off-campus instructional site(s)). Please also note whether any program requirements can be completed through competency-based assessment.

This program is intended to be fully online.

## J. Projected Program Demand (Student Demand)

Briefly describe the primary method(s) used to determine the level of student demand for this program using evidence, such as enrollments in related coursework at the institution, or a survey of student interest conducted (indicate the survey instrument used), number and percentage of respondents, and summary of results.

This proposed BS in Cyber Operations Technology program is not exactly like any other programs we have found. The closest are other B.S. in Cyber Operations programs such as those at The Citadel, Augusta State, and Dakota State. The Citadel and Augusta State are in-person offerings, whereas Dakota State is offered online.

The projected enrollment is derived from the enrollment at these three institutions as follows:

| | FA 13 | FA 14 | FA 15 | FA 16 | FA 17 | FA 18 | FA 19 | FA 20 | FA 21 | FA 22 |
|---|---|---|---|---|---|---|---|---|---|---|
| The Citadel | | | | | | | | 16 | 41 | 60 |
| Dakota State | 65 | 168 | 217 | 306 | 401 | 463 | 489 | 490 | 456 | 461 |
| Augusta State | | | | | | | 10 | 19 | 19 | 23 |
| | year 1 | year 2 | year 3 | year 4 | year 5 | | | | | |
| The Citadel | 16 | 41 | 60 | | | | | | | |
| Dakota State | 65 | 168 | 217 | 306 | 401 | | | | | |
| Augusta State | 10 | 19 | 19 | 23 | | | | | | |
| **Average** | 30.33 | 76.00 | 98.67 | | | | | | | |
| **Median** | 16 | 41 | 60 | | | | | | | |

Dakota State was likely out in front due to

(1) significant fiscal investment into their program,

(2) being early, and

(3) being online.

| **Estimates of new BS in Cyber Ops Technology:** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1st year | 20 | | | | | | | | | |
| 2nd year | 40 | | | | | | | | | |
| 3rd year | 60 | | | | | | | | | |
| 4th year | 80 | | | | | | | | | |
| 5th year | 100 | | | | | | | | | |

## III. Program Resource Requirements

### A. Proposed Program Faculty*

*Current Faculty and Faculty to Be Hired*

Complete the following **New Academic Degree Proposal Faculty Roster** to provide a brief summary and qualifications of current faculty and potential new hires specific to the program.

***Note**: Institutions must maintain and have current as well as additional faculty curriculum vitae available upon ACHE request for as long as the program is active, but CVs are **not** to be submitted with this proposal.

| **Current Faculty** | | | |
|---|---|---|---|
| **1** | **2** | **3** | **4** |
| **CURRENT FACULTY NAME (FT, PT)** | **COURSES TAUGHT** including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU) | **ACADEMIC DEGREES and COURSEWORK** Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed | **OTHER QUALIFICATIONS and COMMENTS** Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS) |
| N/A | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Current Faculty | | | |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| CURRENT FACULTY NAME (FT, PT) | COURSES TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU) | ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed | OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS) |
| **Additional Faculty (To Be Hired)** | | | |
| 1 | 2 | 3 | 4 |
| FACULTY POSITION (FT, PT) | COURSES TO BE TAUGHT including Term, Course Number, Course Title, & Credit Hours (D, UN, UT, G, DU) | ACADEMIC DEGREES and COURSEWORK Relevant to Courses Taught, including Institution and Major; List Specific Graduate Coursework, if needed | OTHER QUALIFICATIONS and COMMENTS Related to Courses Taught and Modality(ies) (IP, OL, HY, OCIS) |
| PT | CYB 201, CYB 411 | Minimum MS degree in CS, Cybersecurity, or similar | |
| PT | CYB 305 | Minimum MS degree in CS, Cybersecurity, or similar | |
| PT | CYB 311, CYB 409 | Minimum MS degree in CS, Cybersecurity, or similar | |
| PT | CYB 415, CYB 416 | Minimum MS degree in CS, Cybersecurity, or similar | |
| PT | CYB 461, CYB 462 | Minimum MS degree in CS, Cybersecurity, or similar | |
| PT | CYB 452 | Minimum MS degree in CS, Cybersecurity, or similar | |

**Abbreviations: (FT, PT): Full-Time, Part-Time; (D, UN, UT, G, DU): Developmental, Undergraduate Nontransferable, Undergraduate Transferable, Graduate, Dual: High School Dual Enrollment**
**Course Modality: (IP, OL, HY, OCIS): In-Person, Online, Hybrid, Off-Campus Instructional Site**
**Courses Taught/To be Taught – For a substantive change prospectus/application, list the courses *to be taught*, not historical teaching assignments.**

## B. All Proposed Program Personnel

Provide all personnel counts for the proposed program.

| Employment Status of Program Personnel | | Personnel Information | | |
|---|---|---|---|---|
| | | Count from Proposed Program Department | Count from Other Departments | Subtotal of Personnel |
| Current | Full-Time Faculty | 0 | 0 | 0 |
| | Part-Time Faculty | 3 | 0 | 3 |
| | Administration | 1/3 clinical faculty as management | 0 | 1/3 clinical faculty as management |
| | Support Staff | 0 | 0 | 0 |
| | | | | |
| **New To Be Hired | Full-Time Faculty | 0 | 0 | 0 |
| | Part-Time Faculty | 3 | 0 | 3 |
| | Administration | 0 | 0 | 0 |
| | Support Staff | ½ staff assistant, 1/5 sysadmin | 0 | ½ staff assistant, 1/5 sysadmin |
| | | | **Personnel Total** | 6PT + <1 support, admin |

****Note**: **Any new funds** designated for compensation costs (Faculty (FT/PT), Administration, and/or Support Staff to be Hired) **should be included** in the **New Academic Degree Program Business Plan Excel file**. Current personnel salary/benefits (Faculty (FT/PT), Administration, and/or Support Staff) **should not be included** in the **Business Plan**.

Provide justification that the institution has proposed a sufficient number of faculty (full-time and part-time) for the proposed program to ensure curriculum and program quality, integrity, and review.

For the 1/3 clinical faculty administering the program, we plan to leverage a Clinical Assistant Professor in our Department of Computer Science who is familiar with other cybersecurity courses in the department as well. This individual, who reports directly to the Department Chair, will ensure consistency for the program and serve as a central point of contact for the proposed program. Through years of professional collaboration, the Department of Computer Science has already a strong pool of highly-qualified part-time faculty. Due to UAH's location and ties with Cummings Research Park and nearby Redstone Arsenal, subject-matter experts are available locally, and six part-time faculty members are sufficient to launch the program successfully. If the program scales quickly, we expect to be able to adjust the number of instructors efficiently, leveraging additional local subject experts.

## C. Equipment

Will any special equipment be needed specifically for this program? **Yes ☒ No ☐**
If *yes*, list the special equipment. Special equipment cost should be included in the **New Academic Degree Program Business Plan Excel file.**

Yes, $15,000 for one server the first year. It is anticipated that the 4th year another server will be needed. An NSF run cloud that provides free cloud resources for courses such as this has been identified. The cloud providers have assured us there is sufficient capability to handle the entire new BS in Cyber Operations Technology program. The program will be taught completely online, so no physical rooms are necessary.

## D. Facilities

Will any new facilities be required specifically for the program? **Yes ☐ No ☒**

If *yes*, list only **new** facilities. New facilities cost should be included in the **New Academic Degree Program Business Plan Excel file.**

Will any renovations to any existing infrastructure be required specifically for the program? **Yes ☐ No ☒**

If *yes*, list the renovations. Renovation costs should be included in the **New Academic Degree Program Business Plan Excel file.**

## E. Assistantships/Fellowships

Will the institution offer any assistantships specifically for this program? **Yes ☐ No ☒**

If *yes*, how many assistantships will be offered?

The expenses associated with any *new* assistantships should be included in the **New Academic Degree Program Business Plan Excel file.**

## F. Library

Provide a brief summarization (one to two paragraphs) describing the current status of the library collections supporting the proposed program.

The M. Louis Salmon Library at The University of Alabama in Huntsville, established in 1969, is housed in a 105,000 square foot facility which includes a state-of-the-art high-tech wing providing significant computing facilities (windows labs). The Library supports the academic and research programs of the University through its collections of over 200,000 print books, over 599,000 electronic books, over 82,000 digital serial/journal titles, over 300 online databases, 10 faculty librarians, unique learning labs, and outreach programs.

As part of the Network of Alabama Academic Libraries, the Salmon Library has subscribed to several computer database services at consortium pricing thus implementing access theory. Salmon Library currently offers over 300 electronic resources from the Library's website.

Will additional library resources be required to support the program? **Yes ☐ No ☒**

If *yes*, briefly describe how any deficiencies will be remedied, and include the cost in the **New Academic Degree Program Business Plan Excel file.**

## G. Accreditation Expenses

Will the proposed program require accreditation expenses? **Yes ☐ No ☒**

If *yes*, briefly describe the estimated cost and funding source(s) and include cost in the **New Academic Degree Program Business Plan Excel file.**

## H. Other Costs

Please explain any other costs to be incurred with program implementation, such as marketing or recruitment costs. Be sure to note these in the **New Academic Degree Program Business Plan Excel file.**

Costs will include a half-time staff assistant. This is budgeted starting at $20,000/year based on rounding up the salary of a current half time assistant in the Computer Science department.

Other costs will include a part-time system administrator. Dr. Sara Graves from the UAH Information Technology and Systems Center has said she will allow us to buy out the time of one of her system administrators on staff. This system administrator's salary is $96,220 for 2025. We assume we will buy out his salary 20% for the first two years, then 40% the last several years as student enrollment grows.

The costs include hiring part-time instructors to teach the courses. They are budgeted at $4,500 per course (normally now the Computer Science department pays $4,000/course for a part-time instructor with an MS degree, and $5000 for a part time instructor with a Ph.D., so $4,500 assumes half with MS degrees and half with Ph.D. degrees.

The part-time instructor (faculty) analysis assumes 21 courses per year additional at UAH, rising to 22 in the 3rd year, and 23 in the 5th year.

The costs include graders at 10 hours/week per course (assuming 21 courses per year additional at UAH, rising to 22 in the 3rd year, and 23 in the 5th year), it is assumed the cost of hiring graders will be $12/hour.

A server will be purchased the first year and the 4th year, to support this program.

## I. Revenues for Program Support

Will the proposed program require budget reallocation? **Yes ☐ No ☒**

If *yes*, briefly describe how any deficiencies will be remedied and include the revenue in the **New Academic Degree Program Business Plan Excel file.**

Will the proposed program require external funding (*e.g.*, Perkins, Foundation, Federal Grants, Sponsored Research, etc.)? **Yes ☐ No ☒**

If *yes*, list the sources of external funding and include the revenue in the **New Academic Degree Program Business Plan Excel file.**

Please describe how you calculated the tuition revenue that appears in the **New Academic Degree Program Business Plan Excel file.** Specifically, did you calculate using cost per credit hour or per term? Did you factor in differences between resident and non-resident tuition rates?

**Tuition Analysis**

NOTE: assume that if half students are part-time and half full-time
15 hours/semester FT
7.5 hours/semester PT
22.5 hours/semester total
divide by 2 (since half FT and half PT)
get 11.25 hours/semester. Round up to 12 hours.

Assumed average 12 hours/semester per student. Assumed all domestic students coming from Alabama Community Colleges.

| | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th | 7th |
|---|---|---|---|---|---|---|---|
| **Enrollment Estimates** | 20 | 40 | 60 | 80 | 100 | 120 | 140 |
| | | | | | | | |
| assume 3 hours/course | 3 | | | | | | |
| assume 12 hours/semester | 12 | | This assumes students are taking 4 courses/semester | | | | |
| | | | | | | | |
| Tuition per 12 hours | $5,187.00 | | Use 12 hours per Bursar's office to take block tuition into account | | | | |
| Infrastructure fee | $264 | | | | | | |
| CoS fee | $480.00 | | $40/hour college of science fee times 3 hours | | | | |
| **Total for 12 hours/semester** | $5,931 | | | | | | |
| Total per year FA/SP semesters | $11,862 | | | | | | |
| | | | | | | | |
| | **1st year** | **2nd year** | **3rd year** | **4th year** | **5th year** | **6th** | **7th** |
| **Total Tuition and Fee/year** | **$237,240** | **$474,480** | **$711,720** | **$948,960** | **$1,186,200** | **$1,423,440** | **$1,660,680** |

## IV. Employment Outcomes and Program Demand (Industry Need)

## A. Standard Occupational Code System

Using the federal Standard Occupational Code (SOC) System, indicate the top three occupational codes related to post-graduation employment from the program. A full list of SOCs can be found at https://www.onetcodeconnector.org/find/family/title#17.

A list of Alabama's *In-Demand Occupations* is available at https://www.ache.edu/index.php/policy-guidance/.

SOC 1 (**required**): 15-1232.00 – Computer User Support Specialists

SOC 2 (*optional*): 15-1244.00 – Network and Computer Systems Administrators

SOC 3 (*optional*): 15-1211.00 – Computer Systems Analysts

Briefly describe how the program fulfills a specific industry or employment need for the State of Alabama. As appropriate, discuss alignment with Alabama's Statewide or Regional Lists of In-Demand Occupations (https://www.ache.edu/index.php/policy-guidance/) or with emerging industries as identified by Innovate Alabama or the Economic Development Partnership of Alabama (EDPA).

Cyber Operations Technology is a new program that will enhance cybersecurity workforce development in Alabama overall, and also in the southeast USA. This plan will leverage existing course offerings in cybersecurity and computer science at Alabama community colleges to provide the first two years of a 4-year degree cybersecurity program. The last two years of this cybersecurity program will be offered fully online at UAH. In addition to enhancing the overall cybersecurity workforce in Alabama, this path will enable a pathway for associate degree graduates from Alabama community colleges to a 4-year degree, and therefore greatly enhance their overall career potential.

The program is intended to improve workforce development in the areas of system administration and cyber operations in the state of Alabama.

The intent is to provide a much-improved workforce for the low-tech areas of Alabama, or for lower tech jobs. The graduates from this program are not intended, as a general thing, to compete for advanced high-tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower tech cybersecurity and system administration jobs in the Huntsville area, such as at factories.

We hope to be able to attract workforce funding from the State of Alabama to further support growth of this program.

## B. Employment Preparation

Describe how the proposed program prepares graduates to seek employment in the occupations (SOC codes) identified.

In the text below, (CC) represents a course at an Alabama Community College, and (UAH) represents one of the CYB courses at the University of Alabama in Huntsville. Note, however, that all the CC courses are labeled CIS, whereas all the UAH courses are labeled CYB.

SOC 1 (**required**): 15-1232.00. This is described as follows:
Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, via telephone, or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.

The courses {CIS 276 (CC) Server administration or CIS 267 (CC) Enterprise virtualization or CIS 123 (CC) Google IT Profess. Support IV} and CYB 452 (CC)} and {CYB 411 (UAH) Database Systems and CYB 452 (UAH) Web Security & Cloud} will enable graduates to help with basic sysadmin tasks such as computer hardware and software installation and support (word processing, email), while also providing web page and database support.

The courses CIS 171 (CC) Fundamentals of Unix/Linux I and CYB 409 (UAH) Basic Operating Systems will enable the graduates to assist persons with operating systems.

The courses {CIS 276 (CC) Server administration or CIS 267 (CC) Enterprise virtualization or CIS 123 (CC) Google IT Profess. Support IV} and CYB 415 (CC) Basic Cybersecurity will enable graduates to install basic security measures (such as firewalls) and also trouble shoot basic security problems, while also training users on security problems such as phishing.

SOC 2 (*optional*): 15-1244.00 This is described as follows:
Install, configure, and maintain an organization's local area network (LAN), wide area network (WAN), data communications network, operating systems, and physical and virtual servers. Perform system monitoring and verify the integrity and availability of hardware, network, and server resources and systems. Review system and application logs and verify completion of scheduled jobs, including system backups. Analyze network and server resource consumption and control user access. Install and upgrade software and maintain software licenses. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software.

{CIS 270 (CC) Cisco CCNA I and Cisco CIS 271 Cisco CCNA II and Cisco 272 (CC) Cisco CCNA III or alternately CIS 161 (CC) Intro Networking Communications and CIS 162 (CC) Advanced Networking COMPTIA+} and {CYB 409 (UAH) Basic Operating Systems and CYB 415 Basic Cybersecurity and CYB 415 (UAH) Network-Based Security and CYB 452 (UAH) Web Security & Cloud} will enable graduates to install and maintain both LANs and WANs, including analyzing network usage and ensuring network security.

SOC 3 (*optional*): 15-1211.00 This is described as follows:
Analyze science, engineering, business, and other data processing problems to develop and implement solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions, improve existing computer systems, and review computer system capabilities, workflow, and schedule limitations. May analyze or recommend commercially available software.

The better graduates of this program, after substantial practical work experience, will be able to work in this more advanced cybersecurity area. All the courses in the program, both at the Alabama Community College level and the UAH level, contribute to the knowledge needed by these graduates.

## C. Professional Licensure/Certification

Please explain if professional licensure or industry certification is required for graduates of the proposed program to gain entry-level employment in the occupations selected. Be sure to note which organization(s) grants licensure or certification.

Professional licensure is not required for these graduates, there are numerous jobs available for which this is not necessary. However, certifications such as Network+ and Security+ are beneficial for more advanced jobs. CompTIA supports Network+ and Security+ certification. There are other certifications available such as Cisco CCNA certification, which will be beneficial for graduates working with some kinds of computer equipment.

Both the Alabama Community College courses and the CYB courses at UAH will provide material needed for students wishing to test for one of the above certifications.

### D. Additional Education/Training

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

No additional training is necessary.

The BS in Cyber Operations Technology itself is intended to provide the additional training that is required for persons with Associates Degrees in Cybersecurity from Alabama Community Colleges to better be able to gain and maintain entry level employment, and later achieve promotion.

## V. Curriculum Information for Proposed Degree Program

**A.** Program Completion Requirements: Enter the credit hour value for all applicable components (enter N/A if not applicable).

| Curriculum Overview of Proposed Program | |
|---|---|
| Credit hours required in **general education** | 49 |
| Credit hours required in **program courses** | 51 |
| Credit hours in **program electives/concentrations/tracks** | 9 |
| Credit hours in **free electives** | 11 |
| Credit hours in **required research/thesis** | 0 |
| **Total Credit Hours Required for Completion** | **120** |

Note: The above credit hours **MUST** match the credit hours in the *Curriculum Components of Proposed Program* table in Section V.G.

**B.** Maximum number of credits that can be transferred in from another institution and applied to the program:

60 credits may be transferred in, normally from an Alabama Community College.

**C.** Intended program duration in semesters for full-time students:

4 years, 8 semesters at 15 credit hours/semester (2 years at an Alabama Community College, 2 years in the UAH online BS in Cyber Operations program)

**D.** Intended program duration in semesters for part-time students:

One common expected scenario is students who first get an Associate degree in Cybersecurity from an Alabama Community College, and then work full time using that degree while completing their BS in Cyber Operations Technology full-time online.

6 years (11 to 12 semesters)

- 2 years (4 semesters) full time at 15 hours/semester at an Alabama Community College to complete the first 60 hours
- then 4 years (7 to 8 semesters) part time at UAH to complete the remaining 60 hours

**E.** Does the program require students to demonstrate industry-validated skills, specifically through an embedded industry-recognized certification, structured work-based learning with an employer partner, or alignment with nationally recognized industry standards? **Yes ☐ No ☒**

If yes, explain how these components fit with the required coursework.

**F.** Does the program include any concentrations? **Yes ☐ No ☒**

If yes, provide an overview and identify these courses in the *Electives/Concentrations/Tracks* section in the Curriculum Components of Proposed Program Table in Section V.G.

**G.** Please provide all course information as indicated in the following table. Indicate new courses with "Y" in the associated column. If the course includes a required work-based learning component, such as an internship or practicum course, please indicate with a "Y" in the WBL column.

NOTE: in the below, (CC) means the course (or similar in the case of GERs) is planned to be taken at a community college.
NOTE: for GERS the UAH numbers are given, but the equivalent courses may be taken at a community college (up to max number of community college courses for this program.)
NOTE: The orange shaded areas with smaller type are sub-parts/selected courses of the category immediately above.

| **Program Name:** | **Cyber Operations Technology** | | | |
|---|---|---|---|---|
| **Program Level:** | **BS** | | | |
| **Curriculum Components of Proposed Program** | | | | |
| **Course Number** | **Course Title** | **Credit Hours** | **New? (Y)** | **WBL? (Y)** |
| **General Education Courses** *(Undergraduate Only)* | | | | |
| EH 101 &102 | College Writing I & II | 6 | | |
| EH 101 | College Writing I | 3 | | |
| EH 102 | College Writing II | 3 | | |
| EH 103 | Accelerated College Writing | 3 | | |
| | Category A: HUMANITIES and FINE ARTS | 12 | | |
| | FINE ART (part of category A above) | 3 | | |
| ARH 100 | Ancient to Medieval Art | 3 | | |
| ARH 101 | Renaissance to Modern Art | 3 | | |
| ARH 103 | Non-Western Art | 3 | | |
| TH 122 | Theatre Appreciation | 3 | | |
| ARS 160 | Intro to Drawing | 3 | | |

| | | | | |
|---|---|---|---|---|
| MU 100 | Intro to Music Literature | 3 | | |
| | LITERATURE (part of category A above) | 3 | | |
| EH 207 | Readings Literature/Culture I | 3 | | |
| EH 208 | Readings Literature/Culture II | 3 | | |
| EH 242 | Mythology | 3 | | |
| EH 209 | Honors Literature I | 3 | | |
| EH 210 | Honors Literature II | 3 | | |
| | NON-LITERATURE Humanity (**double counts** with Ethics in PREPROFESSIONAL) (part of category A above) | 3 | | |
| PHL 102 | Intro to Ethics | 3 | | |
| PHL 150 | Tech, Science, and Human Values | 3 | | |
| | HUMANITIES/FINE ARTS/LITERATURE (part of category A above) | 3 | | |
| | COURSE SELECTED FROM CATEGORIES ABOVE | 3 | | |
| | CALCULUS | 4 | | |
| MA 171 | Calculus I | 4 | | |
| MA 171S | Calculus I | 4 | | |
| MA 150 | Calculus with Foundations A | 3 | | |
| MA 151 | Calculus with Foundations B | 3 | | |
| | NATURAL SCIENCE (LAB SCIENCE) | 8 | | |
| AES 103/103L | Environmental Earth Science + Lab | 4 | | |
| AES 104/104L | Weather and Climate Change + Lab | 4 | | |
| AST 100 | Survey of Astronomy | 4 | | |
| AST 106 | Exploring the Cosmos I | 4 | | |
| AST 107 | Exploring the Cosmos II | 4 | | |
| BYS 109 | Fundamentals of Biology | 4 | | |
| BYS 119/121 | Principles of Biology+lab | 3/1 | | |
| BYS 120/122 | Organismal Biology+lab | 3/1 | | |
| BYS 215 | Human Anatomy & Physiology I | 4 | | |
| CH 101/105 | Intro to Chemistry + Lab | 3/1 | | |
| CH 121/125 | General Chemistry I+lab | 3/1 | | |
| CH 123/126 | General Chemistry II+lab | 3/1 | | |
| CH 151 | General, Organic, Biochemistry | 3 | | |
| PH 101 | General Physics I | 4 | | |
| PH 102 | General Physics II | 4 | | |
| PH 111/114 | General Physics with Calculus I + lab | 3/1 | | |
| PH 112/115 | General Physics with Calculus II + lab | 3/1 | | |
| | Category B: HISTORY and SOCIAL & BEHAVIORAL SCIENCES | 12 | | |
| | HISTORY (part of category B above) | 3 | | |
| HY 103 | World History I | 3 | | |
| HY 104 | World History II | 3 | | |
| | SOCIAL & BEHAVIORAL SCIENCE (part of category B above) | 9 | | |
| ECN 231 | Principles of Macroeconomics | 3 | | |
| ECN 143 | Microeconomics | 3 | | |

| | | | | |
|---|---|---|---|---|
| PSC 102 | American Government | 3 | | |
| PSC 160 | Politics and Foreign Government | 3 | | |
| PSC 260 | International Relations | 3 | | |
| AES 105 | World Geography | 3 | | |
| AES 110 | Human Geography | 3 | | |
| GS 200 | Global Systems & Cultures | 3 | | |
| SOC 100 | Intro to Sociology | 3 | | |
| SOC 103 | Intro to Criminology | 3 | | |
| PY 101 | General Psychology | 3 | | |
| PY 201 | Life Span Development | 3 | | |
| **Program Courses** | | | | |
| | PRE-PROFESSIONAL | 7 | | |
| ORI 110 | Freshman Orientation | 1 | | |
| EH 301 | Tech Writing | 3 | | |
| | ETHICS (part of PRE-PROFESSIONAL – counted in Category A) | 0 | | |
| PHL 102 | Intro to Ethics | 3 | | |
| PHL 150 | Tech, Science, and Human Values | 3 | | |
| | STATISTICS (part of PRE-PROFESSIONAL) | 3 | | |
| BUS 271 (CC) | Business Statistics | 3 | | |
| MA 281 (CC) | Elements of Statistical Analysis | 3 | | |
| | CATEGORY C: MAJOR REQUIREMENTS AT ALABAMA COMMUNITY COLLEGE | 27 | | |
| | INTRODUCTORY COURSE (part of Category C above) | 3 | | |
| CIS 130 (CC) | Intro to Information Systems | 3 | | |
| CIS 134 (CC) | IT Fundamentals | 3 | | |
| CIS 149 (CC) | Intro to Computers | 3 | | |
| CIS 202(CC) | Python Programming | 3 | | |
| CIS 251 (CC) | C++ Programming | 3 | | |
| CIS 171 (CC) | Linux I | 3 | | |
| | NETWORKING (part of Category C above) | 9 | | |
| CIS 161 (CC) | Intro Networking Comm | 3 | | |
| CIS 162 (CC) | Adv. Networking COMPTIA Network+ | 3 | | |
| CIS 199 (CC) | Network Comm | 3 | | |
| CIS 214 (CC) | Security Analysis (Pen testing) | 3 | | |
| CIS 270 (CC) | Cisco CCNA I | 3 | | |
| CIS 271 (CC) | Cisco CCNA II | 3 | | |
| CIS 272 (CC) | Cisco CCNA III | 3 | | |
| CIS 280 (CC) | Network Security | 3 | | |
| CIS 282 (CC) | Computer Forensics | 3 | | |
| | MAJOR REQUIREMENTS AT UAH | 24 | Y | |
| CYB 201 | C++ Data Structures | 3 | Y | |
| CYB 305 | Discrete Math & Algorithms | 3 | Y | |
| CYB 311 | Basic HW and Assembly Language | 3 | Y | |

| | | | | |
|---|---|---|---|---|
| CYB 409 | Basic Operating Systems | 3 | Y | |
| CYB 411 | Database Systems | 3 | Y | |
| CYB 415 | Basic Cybersecurity | 3 | Y | |
| CYB 416 | Network-based Security | 3 | Y | |
| CYB 452 | Web security & Cloud | 3 | Y | |
| | | | | |
| **Program Electives/Concentrations/Tracks** | | | | |
| | ELECTIVES AT ALABAMA COMMUNITY COLLEGES | 3 | | |
| CIS 123 (CC) | Google IT Profess. Support IV | 3 | | |
| CIS 237 (CC) | Virtual Infrastructure: Installation and Configuration | 3 | | |
| CIS 267 (CC) | Enterprise Virtualization | 3 | | |
| CIS 276 (CC) | Server Administration | 3 | | |
| CIS 277 (CC) | Network Services Administration | 3 | | |
| CIS 281 (CC) | System Analysis & Design | 3 | | |
| | ELECTIVES AT UAH | 6 | Y | |
| CYB 461 | Cellular and Mobile Technologies | 3 | Y | |
| CYB 462 | Advanced Digital Forensics | 3 | Y | |
| CYB 471 | Malware Analysis I | 3 | Y | |
| CYB 472 | Malware Analysis II | 3 | Y | |
| **Research/Thesis** | | | | |
| | N/A | | | |
| | FREE ELECTIVES | 11 | | |
| | | | | |
| | ***Total Credit Hours Required for Completion** | **120** | | |

***Note**: The total credit hours should equal the total credit hours in the Curriculum Overview table (V.B, p. 9).

## New Academic Degree Program Summary/Business Plan

Use the Excel form from ACHE's Academic Program webpage located at https://www.ache.edu/index.php/forms/, named **New Academic Degree Program Business Plan**, to complete the New Academic Program Degree Proposal.

Instructions and definitions are provided in the Excel file. **The New Academic Degree Program Business Plan should be uploaded as an Excel file (.xlsx) in the Academic Program Review (APR) Portal.**

## ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY

| | | | |
|---|---|---|---|
| **INSTITUTION:** | **University of Alabama in Huntsville** | | |
| **PROGRAM NAME:** | **BS in Cyber Operations Technology** | **CIP CODE:** | **11.1003** |
| **SELECT LEVEL:** | **UNDERGRADUATE (BACHELOR'S)** | | |

### ESTIMATED *NEW* EXPENSES TO IMPLEMENT PROPOSED PROGRAM

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| FACULTY | $94,500 | $94,500 | $94,500 | $94,500 | $103,500 | $103,500 | $103,500 | $688,500 |
| ADMINISTRATION/STAFF | $43,744 | $45,314 | $67,761 | $70,291 | $72,923 | $75,660 | $78,506 | $454,198 |
| EQUIPMENT | $15,000 | | | $15,000 | | | | $30,000 |
| FACILITIES | | | | | | | | $0 |
| ASSISTANTSHIPS/FELLOWSHIPS | | | | | | | | $0 |
| LIBRARY | | | | | | | | $0 |
| ACCREDITATION AND OTHER COSTS | $18,520 | $22,520 | $2,520 | $2,520 | $2,760 | $2,760 | $2,760 | $54,360 |
| **TOTAL EXPENSES** | $171,764 | $162,334 | $164,781 | $182,311 | $179,183 | $181,920 | $184,766 | **$1,227,058** |

### *NEW* REVENUES AVAILABLE FOR PROGRAM SUPPORT

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| REALLOCATIONS | | | | | | | | $0 |
| EXTERNAL FUNDING | | | | | | | | $0 |
| TUITION + FEES | $237,240 | $427,032 | $569,376 | $640,548 | $687,996 | $711,720 | $723,582 | $3,997,494 |
| **TOTAL REVENUES** | $237,240 | $427,032 | $569,376 | $640,548 | $687,996 | $711,720 | $723,582 | **$3,997,494** |

### 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 ENROLLMENT HEADCOUNT | No data reporting | 16 | 18 | 18 | 18 | 18 | 18 | **17.67** |
| PART-TIME ENROLLMENT HEADCOUNT | | 20 | 30 | 36 | 40 | 42 | 43 | **35.17** |
| **TOTAL ENROLLMENT HEADCOUNT** | | 36 | 48 | 54 | 58 | 60 | 61 | **52.83** |
| ***NEW* ENROLLMENT HEADCOUNT** | | 20 | 20 | 20 | 20 | 20 | 20 | **20.00** |
| **Validation of Enrollment** | | | **YES** | **YES** | **YES** | **YES** | **YES** | |

### 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** | No data reporting | 4 | 8 | 14 | 16 | 18 | 19 | **13.17** |

**THE UNIVERSITY OF ALABAMA IN HUNTSVILLE**

**Resolution**

**Granting Approval of and Permission to Submit to the Alabama Commission on Higher Education (ACHE) a Proposal for a Bachelor of Science Degree in Cyber Operations Technology (CIP Code 11.1003)**

WHEREAS, the College of Science at The University of Alabama in Huntsville proposes a Bachelor of Science degree in Cyber Operations Technology; and

WHEREAS, the degree program will help to enhance workforce development throughout the state in the areas of cybersecurity, system administration, and cyber operations; and

WHEREAS, the program will build on a base of community college education and offer a pathway to obtaining a bachelor's degree by completing the last two years of coursework online, therefore enhancing graduates' overall career potential; and

WHEREAS, students in the Cyber Operations Technology program will develop skills and abilities related to the configuration, management, and maintenance of complex computer and network systems, as well as the ability to identify and investigate cyberattacks and the assessment and management of cybersecurity devices, systems, and procedures; and

WHEREAS, the Cyber Operations Technology program will be managed under the Computer Science department at UAH and courses will be taught by part-time faculty, from a readily-available and highly-qualified pool. The program, which is proposed for implementation in fall 2026, is expected to generate new revenues in excess of the costs associated with new part-time faculty hires.

NOW, THEREFORE, BE IT RESOLVED by The Board of Trustees of The University of Alabama that the Board does hereby support and approve the Bachelor of Science degree in Cyber Operations Technology (CIP code 11.1003) at The University of Alabama in Huntsville and grants permission to submit this Proposal to the Alabama Commission on Higher Education.

THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

Office of the President

February 24, 2025

Mr. Sid J. Trant
Chancellor
The University of Alabama System
Sid McDonald Hall
500 University Blvd. East
Tuscaloosa, AL 35401

Dear Chancellor Trant:

Attached is a proposal, resolution, and supporting documentation for the creation of a new Bachelor of Science (B.S.) degree in Cyber Operations Technology at The University of Alabama in Huntsville.

I ask that the program proposal be reviewed and placed on the agenda for the April 2025 Board of Trustees Meeting.

Sincerely,

Charles L. Karr
President

Attachments

**MEMORANDUM**

Date: February 21, 2025

To: Charles L. Karr, President

From: David Puleo, Provost and Executive Vice President for Academic Affairs

David Puleo
2025.02.27
05:57:10 -06'00'

Subject: Resolution Proposing New Bachelor of Science degree in Cyber Operations Technology

Attached is a resolution along with a complete proposal package for the creation of a new Bachelor of Science (B.S.) degree in Cyber Operations Technology. The new degree program will be offered under the College of Science at UAH.

This resolution and supporting documents are submitted for your review, approval, and forwarding to the Board of Trustees for the next meeting. If you have any questions or need more information, please let me know.

Attachments

Costs will include a half time staff assistant. This is budgeted starting at $20,000/year based on rounding up the salary of a current half time assistant in the Computer Science department.

Other costs will include a part time system administrator. Dr. Sara Graves from the UAH Information Technology and Systems Center has said she will allow us to buy out the time of one of her system administrators on staff. This system administrator's salary is $96,220 for 2025. We assume we will buy out his salary 20% for the first two years, then 40% the last several years as student enrollment grows. The costs include hiring part time instructors to teach the courses. They are budgeted at $4500 per course (normally now the Computer Science department pays $4000/course for a part time instructor with an MS degree, and $5000 for a part time instructor with a Ph.D., so $4500 assumes half with MS degrees and half with Ph.D. degrees.

The part time instructor (faculty) analysis assumes 21 courses per year at UAH, rising to 23 in the 5th year

The costs include graders at 10 hours/week per course, assuming 21 courses per year at UAH, rising to 23 in the 5th year

A server will be purchased the first year and the $4^{th}$ year, to support this program.

| | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th | 7th |
|---|---|---|---|---|---|---|---|
| **Enrollment Estimates** | 20 | 36 | 48 | 54 | 58 | 60 | 61 |
| assume 3 hours/course | 3 | | | | | | |
| assume 12 hours/semester | 12 | | This assumes students are taking 4 courses/semester | | | | |
| Tuition per 12 hours | $5,187.00 | | Use 12 hours per Bursar's office to take block tuition into account | | | | |
| infrastructure fee | $264 | | | | | | |
| CoS fee | $480.00 | | $40/hour college of science fee times 3 hours | | | | |
| **Total for 12 hours/semester** | $5,931 | | | | | | |
| Total per year FA/SP semesters | $11,862 | | | | | | |

| | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th | 7th |
|---|---|---|---|---|---|---|---|
| **Total Tuition and Fee/year** | **$237,240** | **$427,032** | **$569,376** | **$640,548** | **$687,996** | **$711,720** | **$723,582** |

**Assume no increases in tuition for 7 years (worst case for this calculation)**

NOTE: assume that if half students are part time and half full time, then the number of hours per semester is approx correct

| | |
|---|---|
| 15 hours/semester | FT |
| 7.5 hours/semester | PT |
| 22.5 hours/semester | total |

divide by 2 (since half FT and half PT)
get 11.25 hours/semester. Round up to 12 hours.

# Proposal Information

**Proposal Rationale**

This is a new program that will enhance cybersecurity workforce development in Alabama overall, and also in the southeast USA. This plan will leverage existing course offerings in cybersecurity and computer science at Alabama community colleges to provide the first two years of a 4 year degree cybersecurity program. The last two years of this cybersecurity program will be offered fully online at UAH. In addition to enhancing the overall cybersecurity workforce in Alabama, this path will enable a pathway for associate degree graduates from Alabama community colleges to a 4 year degree, and therefore greatly enhance their overall career potential.

Students taking this course will typically have completed computer information systems and/or cybersecurity courses at a community college (CC) in Alabama. Some prerequisites for this course are not taught at UAH and will be designated (CC) to show that these courses must be transferred in from a community college.

**AMBER NOTE: The program requirements will be updated before publication. The placeholders are there until the courses are approved.

**Workflow Status**

In Progress

**NPP Submitted to Board** expand ▲

Waiting for Approval

Deanna Hughes

# UAH Program Approval Information

**Program Description**

The BS in Cyber Operations Technology prepares students to configure, manage, maintain, and troubleshoot computer and network systems, including assessing and managing cybersecurity devices, systems, and procedures associated with these systems. This includes risk assessment, policy analysis, contingency planning and investigation techniques. Includes the ability to identify and investigate cyber attacks such as data breaches and malware infections. Includes instruction in all aspects of computing, including system design, programming, networking, computer architecture, telecommunications, operating systems.

**Program Level**
Undergraduate

**Delivery Method**
Fully Online

**College**
College of Science

**Department**
Computer Science (CS)

**Program Title**
Cyber Operations Technology (BS)

**This program is a(n)**
Major

**Program Type**
Bachelors

**6-digit CIP**
11.1003

**Number of Credit Hours**
120

**Proposed Implementation Date**
Fall 2026

**Accreditation Requirement**
Yes

**Explanation**

**External Academic Units**
No

---

**Learning Outcomes**
Configure, manage,  maintain, and troubleshoot complex computer and network systems,
Assess and manage cybersecurity devices, systems, and procedures associated with these systems.
Able to identify and investigate cyber attacks
Communicate effectively in a variety of professional contexts.
Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
Recognize the need for, and an ability to engage in, continuing professional development.

## Coursework for the Proposed Program/Pathway

**Program Requirements**
No Rules

**Charger Foundation Requirements**

### Charger Foundations

38 - 41
Total Credits

- Students must take one literature and one history course. Students must also take either a second literature or history course. If two history courses are taken, a sequence is required. Acceptable history sequences are (HY 103 + HY 104) and (HY 221 + HY 222).

### Area I: Freshman Composition

3 - 6
Total Credits

- Complete 1 of the following
    - Earn a minimum grade of C- in all of the following:
        - EH101 - COLLEGE WRITING I  (3)
        - EH102 - COLLEGE WRITING II  (3)

    - Complete all of the following
        - Earn a minimum grade of C- in at least 1 of the following:

- EH103 - ACCELERATED COLLEGE WRITING (3)
- EH105 - HONORS ENGLISH SEMINAR (3)

- 3 hours from any General Elective

## Area II: Humanities and Fine Arts

12
Total Credits

- Complete all of the following
  - ▼ Charger Foundations - Area II
  - Cyber Operations Technology Students are required to take either PHL 102 or PHL 150 to satisfy Area II Requirements

## Area III: Mathematics and Sciences

11
Total Credits

- ▼ Charger Foundations - Area III

## Area IV: History, Social, and Behavioral Sciences

12
Total Credits

- ▼ Charger Foundations - Area IV

### Grand Total Credits: 38 - 41

**Area V (Pre-Professional)**

## Area V (Pre-Professional) Requirements

14 - 16
Total Credits

- Complete all of the following

  **First Year Experience**
  - 1 hours from:
    - FYE101S - CHARGER SUCCESS - SCIENCE (1)

  **Ethics**
  - 3 hours from:
    - PHL102 - INTRO TO ETHICS (3)
    - PHL150 - TECH, SCIENCE & HUMAN VALUES (3)

  **Mathematics**
  - Complete 1 of the following
    - 4 hours from:

- MA171 - CALCULUS I (4)
- MA171S - CALCULUS I S-SECTION (4)

- 6 hours from:
  - MA150 - CALCULUS I WITH FOUNDATIONS A (3)
  - MA151 - CALCULUS I WITH FOUNDATIONS B (3)

**Technical Elective**

- 6 hours from:
  - EH301 - TECHNICAL WRITING (3)
  - MA281 - ELEMENTS OF STATISTICAL ANALYS (3)

## Charger Foundations

0
Total Credits

No Rules

## Grand Total Credits: 14 - 16

**Major Requirements**

## Core Requirements

0
Total Credits

- Complete all of the following

**COMMUNITY COLLEGE COURSES**

- Complete all of the following

**Introductory Computing Courses**

- Complete 1 of the following
  - CIS 130 (CC) Intro to Information S ystems
  - CIS 134 (CC) IT Fundamentals
  - CIS 149 (CC) Intro to Computers
  - Note that spreadsheet and word processing courses such as CIS 113 Spreadsheet Software Applications or CIS 146 Computer Applications or CIS 147 Advanced Computer Applications are specifically not allowed to fill this requirement.

**Introductory Programming Courses**

- Complete all of the following
  - CIS 202 (CC) Python Programming
  - CIS 251 (CC) C++ Programming

**Unix/Linux course**

- Complete 1 of the following
  - CIS 171 (CC) Linux I
  - CPT 288 (CC) Linux Administration

**Networking Sequence**

- Complete 1 of the following

**Cisco CCNA**

- Complete all of the following
  - CIS 270 (CC) Cisco CCNA I
  - CIS 271 (CC) Cisco CCNA II
  - CIS 272 (CC) Cisco CCNA III

**COMPTIA Network+**

- Complete all of the following
  - CIS 161 (CC) Intro Network Comm

- CIS 162 (CC) Adv. Network Comm
- appropriate 3 hour Network course such as CIS 277 (CC) Network Services or CIS 288 (CC) Networking Applications or (in some cases) CIS 214 (CC) Security Analysis (Pen testing) or similar

**Other Network Sequence**

- Complete all of the following
  - CIS 199 (CC) Network Comm.
  - appropriate 3 hour Network course such as CIS 277 (CC) Network Services or CIS 288 (CC) Networking Applications or (in some cases) CIS 214 (CC) Security Analysis (Pen testing) or similar
  - appropriate 3 hour Network course such as CIS 277 (CC) Network Services or CIS 288 (CC) Networking Applications or (in some cases) CIS 214 (CC) Security Analysis (Pen testing) or similar

**Network Security Course**

- CIS 280 (CC) Network Security

**Digital Forensics Course**

- CIS 282 (CC) Computer Forensics or equivalent

**Electives**

- Complete 2 of the following
  - CIS 276 (CC) Server administration
  - CIS 267 Enterprise Virtualization
  - CIS 237 (CC) Virtual Infrastructure
  - CIS 123 Google IT Profess. Support IV
  - CIS 281 (CC) System Analysis & Design

**UAH COURSES (ALL ONLINE)**

- Complete all of the following
  - CYB 201 C++ Data Structures
  - CYB 305 Discrete Math & Algorithms
  - CYB 311 Basic HW and Assembly Language
  - CYB 409 Basic Operating Systems
  - CYB 411 Database Systems
  - CYB 415 Basic Cybersecurity
  - CYB 416 Network-based Security
  - CYB 452 Web security & Cloud

**Electives**

- Complete 1 of the following

**Mobile Digital Forensics**

- Complete all of the following
  - CYB 461 Cellular and Mobile Technologies
  - CYB 462 Advanced Digital Forensics

**Malware Analysis**

- Complete all of the following
  - CYB 471 Malware Analysis I
  - CYB 472 Malware Analysis II

**4-Year Plan**

No Rules

**Minor Requirements**

No Rules

**Options/Concentrations**
Yes

**Concentration directions**
STOP!  It is now time to complete the concentration form.

**Concentrations**

| Code | Title |
|---|---|

## Admin Only

**CM Program Code**

**Include in Catalog**
Yes

**Catalog Activation Date**
1949/05/01

**Board Approval Received**

**ACHE Approval Received**

**SACSCOC Approval Received**

**Board letters**

**ACHE letters**

**SACS letters**

**Notes**

Alabama Automotive Manufacturers Association

January 29, 2025

The University of Alabama in Huntsville
College of Science
301 Sparkman Drive
Huntsville, AL 35899

Dear Dr. Steinwandt:

Within a few years, Alabama has emerged as one of the leading U.S. states in automotive production. The Alabama Automotive Manufacturers Association (AAMA) was formed in 2001 to support the fast-growing automotive industry in our State. Employers in AAMAs scope cover a broad spectrum of businesses, ranging from small specialized suppliers to major OEMs.

Ensuring the security of our computer networks and systems is of great importance to our industry, and meeting our cybersecurity needs remains crucial for us. Especially for smaller businesses and companies, being able to hire qualified system administrators and security experts can be challenging, and we rely on our educational partners to provide an adequately trained (and yet affordable) workforce. The proposed B.S. in Cyber Operations Technology at The University of Alabama Huntsville provides a valuable contribution to meet this workforce demand --- we expect the graduates to fill a skill gap between graduates from 2-year schools and highly technical 4-year programs in computer science or cybersecurity engineering. AAMA already strongly relies on the excellent education provided by the community colleges in our State, and we are pleased to see this new program leveraging the strengths of our community college system, too.

With the online availability and its applied curriculum, the proposed program is very likely to graduate a significant number of cyber specialists who can make the factories and businesses of AAMA members more secure. At AAMA, we look forward and strongly support the launch of this new 4-year program at UAH.

Sincerely,

Ronald D Davis P.E.

Ron Davis
President | Alabama Automotive Manufacturers Association
205.657.5101 | rdavis5101@gmail.com

CALHOUN COMMUNITY COLLEGE

Post Office Box 2216 • Decatur, Alabama 35609-2216 • Phone 256-306-2500 • www.calhoun.edu

January 23, 2025

The University of Alabama in Huntsville
College of Science
301 Sparkman Drive
Huntsville, AL 35899

To Whom It May Concern:

Calhoun Community College is honored to support the University of Alabama in Huntsville's proposed Bachelor of Science program in Cyber Operations Technology and truly looks forward to being one of the program's community college partners.

A skilled cybersecurity workforce continues to be an increasingly critical need both locally and nationwide. There is a specific need to increase the skills needed to ensure a secure environment in critical infrastructure organizations such as hospitals, local government, and manufacturing for the security of our infrastructure and our nation.

This new program will provide a much-needed pathway in our service area and across the state and region to help meet the demand for cybersecurity skills needed to enter to workforce. It will increase the marketability of students as they enter the workforce as well as provide employers with prepared candidates for employment, especially those in critical infrastructure.

We look forward to seeing the impact this program will have to influence the pipeline of qualified cybersecurity workforce and help meet the critical need.

Wesley Rakestraw
Vice President for Academic Affairs

Cynthia Buchheit
Dean of Business & Computer Information Systems

4100 Market Street
Suite 115
Huntsville, AL 35808

January 24, 2025

The University of Alabama in Huntsville
College of Science
301 Sparkman Drive
Huntsville, AL 35899

Dear Dr. Steinwandt:

As part of Cintel's mission, we deliver innovative and value-focused cybersecurity solutions to our customers. To form the connected teams we take pride in, we rely on the availability of a workforce that covers a wide range of different aspects of cybersecurity. This includes, but is not restricted to, management and technical aspects of the field.

UAH's proposal for a B.S. in Cyber Operations Technology follows a promising approach to reducing the existing talent gap in the cyber sector, and Cintel is excited to express strong support for approving this proposal. Building on the (often certification-focused) education of our state's robust community college system, the program enables students to advance to their next career level. The program has a clear applied focus with minimal theory which differentiates it from other technical 4-year degrees in the cybersecurity area. With a compact (2-year) curriculum that follows a required community college education, this program is likely to produce security professionals who are absorbed very quickly by employers within our state and beyond. Offering the degree online makes a lot of sense, as the typical community college graduate is likely to have a full-time position already.

Cintel values the opportunity to support this exciting new program at UAH.

Sincerely,

Dale Jobes
CEO
Cintel, Inc.

January 25, 2025

The University of Alabama in Huntsville
College of Science
301 Sparkman Drive
Huntsville, AL 35899

RE: BS in Cyber Operations Technology

Good day,

We would like to recognize the opportunity of a new degree at the University of Alabama – Huntsville in Cyber Operations Technology. This is a degree that would benefit our company and companies such as ours that have needs in this area themselves while also supporting customers who may have this skillset need in the company's portfolio.

This area of expertise is currently needed here at Leidos at all levels of experience. We continue to expect this skillset to be required for the foreseeable future with the expected continued growth moving forward.

We have had a long-term partnership with the University of Alabama – Huntsville. We value the quality of student that UAH has provided and continues to provide our organization and believe the addition of this major would allow Leidos to interact with students in this curriculum to fill our pipeline needs in this area.

We would certainly welcome this new addition to the University of Alabama – Huntsville portfolio. Please recognize this letter as support for adding the Cyber Operations Technology BS degree.

Sincerely,

*Dale Rimmey*

Dale Rimmey

Program Manager, Leidos College – Talent Acquisition and Solutions

1300 Meridian Street N
Suite 101
Huntsville, AL 35801
256.384.3356
January 28, 2025

The University of Alabama in Huntsville
College of Science
301 Sparkman Drive
Huntsville, AL 35899

Dear Dr. Steinwandt:

On behalf of Mission Multiplier, it is my pleasure to submit this strong letter of support for the Bachelor of Science Degree in Cyber Operations Technology that The University of Alabama in Huntsville is presenting for consideration. The university intends to offer this curriculum as a committed service to its students, local community, and global learning communities which is paramount to their mission.

Having first-hand experience with an educational journey that crosses 2- and 4-year institutions, I value the program structure and the hands-on cybersecurity training at a community college. The advanced technical training in the subsequent courses at UAH which will graduate highly trained members for a technical workforce which we require in consideration of current growth of cybersecurity threats worldwide.

Being a provider of business-focused cyber solutions at Mission Multiplier, we would very much welcome this type of program, which appears to fill a gap in the educational offerings of 4-year programs in Alabama. The online modality of the program is most welcome, and the student learning outcomes address important areas of need such as identifying and investigating cyber attacks and troubleshooting complex computer and network infrastructure.

At Mission Multiplier, we are excited to see this new 4-year program being available in Huntsville and beyond. We offer our support to this important mission of the University of Alabama in Huntsville and the curriculum to support this important technical cyber-focused workforce.

Please feel free to reach out for any further information, questions, or input.

Sincerely,

Philomena Compton

***Philomena Compton, BSED, MLIS, NBCT, EDS, MSCM, Public Notary***
*Capture & Business Development Leader*
*Work E-mail: pcompton@missionmultiplier.com*
*Corporate #: (256) 384-3356*
*Office – Direct Line #: (256) 384.6696*
*Mobile #: (256) 642.8684*
www.missionmultiplier.com

OASYS, INC.

OASYS, INC.
530 Discovery Dr NW
Huntsville, AL 35806

Wednesday, January 29, 2025

Dr. Letha Etzkorn
Chair, UAH Computer Science Department
5000 Technology Dr NW, Room N300B
Huntsville, AL 35899

Dear Dr. Etzkorn:

I am writing to express our support for the CS Department's planned Bachelor of Science in Cyber Operations Technology. When you presented the concept at a recent Industrial Advisory Board meeting, it was well received by all my fellow industry colleagues and impressive in its forward thinking. Learning that the program will be working with community colleges all around Alabama, the prospect is now even more compelling.

The Alabama Supercomputer Authority reports the threat of "thousands of attacks on our schools" each day. The problem is certainly worse for healthcare, finance, and other critical services that we all rely on. Safeguarding our personal health information, business data, economic advantages, banking services, and critical infrastructure against the growing criminal threat is crucial.

Inviting people to take the important preparatory step through affordable two-year institutions and then completing their four-year degrees through UAH's accessible fully online program will help close the cyber gap by expanding the workforce with well-trained professionals. In addition to the immediate difference it will make in their families' lives, Alabama hospitals, schools, factories, local government offices, NASA, and Department of Defense customers will all gain from these new qualified team members contributing to the success of our missions.

We at OASYS are humbled to be able to open doors of opportunity to our fellow Alabamians, many of whom are first in their families to complete college degrees. As a UAH alumnus, I am proud to see my alma mater innovating in the important charge to expand higher education and good jobs in Alabama by creating this exciting new pathway for residents of our beloved state.

Sincerely,

Greg Bacon, Chief Technology Officer, OASYS, INC.

cc: Dr. Rainer Steinwandt, Dean, UAH College of Science

**TactWare, Inc.**
221 Case Road
Huntsville, AL 35811

1/23/2025

To whom it may concern,

I was introduced to the Bachelor of Science in Cyber Operations Technology degree by Dr. Etzkorn. This degree intrigued me because of the current needs of our business in government services contracting. We specialize in Command and Control (C2) systems at the tactical edge. Lives literally depend on a development, security, and operations (DevSecOps) framework that integrates security into each step of our software development. This program fits the exact needs we have been missing in the industry, as it prepares students to configure, manage, maintain, and troubleshoot computer and network systems, including assessing and managing cybersecurity devices, systems, and procedures associated with these systems.

One of the main problems we face is how to keep our systems safe and secure. It is no longer acceptable to simply follow policies and procedures; we must demonstrate our ability to detect, identify the source of, and neutralize any attacks on our system. We must also report any abnormal activity and document the steps taken to stop the attack and prevent future occurrences. The Cyber Operations Technology degree includes coursework in risk assessment, policy analysis, contingency planning, and investigation techniques. It provides training in identifying and investigating cyber-attacks such as data breaches and malware infections, as well as comprehensive instruction in all aspects of computing, including system design, programming, networking, computer architecture, telecommunications, and operating systems.

This degree will give individuals a strong foundation for a lifelong career, positioning them ahead of those with other degrees in the field. As cybersecurity threats continue to evolve, having a workforce trained in cyber operations will be critical in protecting our systems, data, and national security. The program at UAH is essential in ensuring that graduates are prepared to meet these challenges and make an immediate impact in the industry.

Sincerely,

Billy Terrell
President
Email: billy.j.terrell@tactware.net
Phone: 256-309-7250

University of Alabama System®

# New Program Proposal Supplement

In addition to the items ACHE has requested for program proposals, please include the following additional items when developing and submitting academic program proposals to the System Office and the Board of Trustees for approval.

**1. Institution:**

☐ UA ☐ UAB ☑ UAH

Please select more than one institution for cooperative, joint, and shared degree programs.

**2. Program Identification**

Program name: Cyber Operations Technology

Degree Nomenclature: Bachelor of Science (B.S.)

Date of NPP submission: 1/30/2025

**3. Six-digit CIP Code:** 11.1003

**4. Executive Summary (not to exceed two pages)**

The BS in Cyber Operations Technology prepares students to configure, manage, maintain, and troubleshoot computer and network systems, including assessing and managing cybersecurity devices, systems, and procedures associated with these systems. This includes risk assessment, policy analysis, contingency planning and investigation techniques. Includes the ability to identify and investigate cyber attacks such as data breaches and malware infections. Includes instruction in all aspects of computing, including system design, programming, networking, computer architecture, telecommunications, operating systems.

The first two years of courses will be taken at Alabama Community Colleges. The second two years of courses will be taken at UAH. This program will be taught initially ONLY by part time instructors hired by the UAH Computer Science department. If it becomes successful then the expectation is that lecturers and perhaps clinical faculty later will be hired to support it.

## 5. Steps taken to determine if other UA System institutions might be interested in collaborating in the program.

Collaboration is with Alabama community colleges, but not appropriate for other system institutions at this time.

Talks are ongoing with various Alabama community colleges. Calhoun Community College has already agreed to support this program and provided a letter of support (included in package).

## 6. Summary of other campus comments, internal to the UA System or external (if any), regarding your plans for developing this program. Please include substantive feedback from the pre-proposal process.

Feedback from UA:
Overall, the Department of Computer Science in the College of Engineering at UA supports this program.

The proposed Cyber Operations degree appears similar to existing cybersecurity programs in the state; however, its potential uniqueness may lie in its design around community colleges and online delivery. This approach would offer accessibility and flexibility, making it a valuable addition to the state's educational offerings. We look forward to reviewing the full proposal for further details and support the development of this program.

Feedback from UAB:
Dr. Ragib Hassan reviewed the NPP, consulted with other Computer Science department faculty and administration, and does not see any conflict with the related programs at UAB. The group believes the proposed program is distinct from a traditional B.S. in Computer Science. The group also commended the

## 7. Describe the process that will be used by your institution for routine internal and/or external program review.

Programs not subject to external review or accreditation are reviewed on a ten-year cycle. This new BS in Cyber Operations Technology program will be included in the Computer Science department's ten-year self-study evaluation, which includes an external program evaluator. This is further described below.

All Computer Science programs are regularly assessed during SACS accreditation, in the future this will include the BS in Cyber Operations Technology. Note that the UAH BS in Computer Science is also ABET accredited. It is not intended at this time to pursue ABET accreditation for this new BS in Cyber Operations Technology.

However, as mentioned above, all CS programs, including the MS in Computer Science and the Ph.D. in Computer Science as well as the BS in Computer Science are reviewed as a self study (including at least one external reviewer) on a ten year cycle: this is in addition to the standard SACS reviews for all Computer Science programs and the ABET review for the BS in Computer Science. The procedure that

## 8. Describe the process that will be used in assessing program outcomes (to include student learning outcomes).

The Student Learning Outcomes for the BS in Cyber Operations Technology will be assessed once per semester. The results and analysis will be considered at a Computer Science faculty meeting once per year, and the results, analysis, and any recommended changes will be included yearly as part of the regular SACSCOC reporting done by the Computer Science department.

The Student Learning Outcomes are as follows (full rubrics have been created but for brevity are not included here):

CYBOPSTECH--Student Learning Outcome 1: Graduates are proficient in applying Cybersecurity Concepts to implement and test systems that must survive in a hostile environment.

SLO-1 will be assessed in CYB 415 Basic Cybersecurity and CYB452 Web Security & Cloud, as follows: Method 1: Choose a project, paper, presentation, midterm exam question(s). Include number of students

## 9. Other pertinent information, if any.

N/A

University of Alabama System®

**Board Rule 502**
**Notice of Pending Proposal (NPP) for a New Program of Instruction**
*(To be completed by the Provost's Office)*

**1. Institution:**

☐ UA ☐ UAB ☑ UAH

Please select more than one institution for cooperative, joint, and shared degree programs.

**2. Date of NPP Submission (mm/dd/yyyy):** 1/31/2025

**3. Contact Information**

| | |
|---|---|
| Institutional Contact Person: | Letha Etzkorn, Ph.D., Rainer Steinwandt, Ph.D. |
| Telephone: | {256-824-6291, 256-824-6088}, 256-824-6046 |
| Email: | cschair@uah.edu, science.dean@uah.edu |

**4. Program Identification**

| | |
|---|---|
| Program Name: | Cyber Operations Technology |
| Degree Nomenclature: | Bachelor of Science (B.S.) |

**5. 6-digit CIP Code:** 11.1003

**6. Program Mode of Delivery**

Provide the planned delivery format(s) (i.e., in-person, online, hybrid) of the program along with the planned location(s) at which the program will be delivered (i.e., on-campus and/or at specific off-campus instructional site(s)). Please also note whether any program requirements can be completed through competency-based assessment.

- [ ] In-person
- [x] Online
- [ ] Hybrid
- [ ] On-campus
- [ ] Off-campus
- [ ] Competency-based
- [ ] Other, please describe:

**7. Select a meeting for Board consideration:**

- ○ April 11-12, 2024
- ○ June 6-7, 2024
- ○ September 12-13, 2024
- ○ November 7-8, 2024
- ○ February 6-7, 2025
- ◉ April 3-4, 2025
- ○ June 5-6, 2025
- ○ September 11-12, 2025
- ○ November 6-7, 2025
- ○ February 5-6, 2026
- ○ April 2-3, 2026
- ○ June 4-5, 2026

**8. Is the proposed academic degree program currently listed on your campus Three-Year Academic Program Planning Report that is annually submitted to the Board of Trustees?**

- (●) Yes
- ( ) No

**If no, please explain.**

**9. Provide a brief description of the program.**

The BS in Cyber Operations Technology prepares students to configure, manage, maintain, and troubleshoot computer and network systems, including assessing and managing cybersecurity devices, systems, and procedures associated with these systems. This includes risk assessment, policy analysis, contingency planning and investigation techniques. Includes the ability to identify and investigate cyber attacks such as data breaches and malware infections. Includes instruction in all aspects of computing, including system design, programming, networking, computer architecture, telecommunications, operating systems.

The first two years of courses will be taken at Alabama Community Colleges. The second two years of courses will be taken at UAH. This program will be taught initially ONLY by part time instructors hired by the UAH Computer Science department. If it becomes successful then the expectation is that lecturers and perhaps clinical faculty later will be hired to support it.

## 10. Relationship of program to other programs within the institution.

### 10.1. How will the program support or be supported by other programs within the institution?

There is no direct relationship between this program and other UAH programs.

The primary workload increase will be additional administrative work by the chair of Computer Science.

However, a new clinical CS assistant professor in cybersecurity search has recently begun. While teaching regular CS courses (primarily cybersecurity courses), this person will also assist in course design for the new Cyber Ops technology program, and will assist in admin duties for the program after it is going. This person can also teach in the Cyber Ops program, on a as-needed basis (for example, with last minute schedule holes), while also supporting regular CS cybersecurity courses.

### 10.2. Will this program replace any existing program(s) or specialization(s), option(s) or concentration(s) within existing programs?

- ○ Yes
- ◉ No

**If yes, please explain:**

## 11. If this program is similar or duplicative of any other programs in the system or the state, please give your rationale for program duplication.

This is a new program that will enhance cybersecurity workforce development in Alabama overall, and also in the southeast USA. This plan will leverage existing course offerings in cybersecurity and computer science at Alabama community colleges to provide the first two years of a 4 year degree cybersecurity program. The last two years of this cybersecurity program will be offered fully online at UAH. In addition to enhancing the overall cybersecurity workforce in Alabama, this path will enable a pathway for associate degree graduates from Alabama community colleges to a 4 year degree, and therefore greatly enhance their overall career potential.

This new program is not duplicative of any programs in Alabama.

## 12. Do you plan to explore possible program collaboration with other institutions? Please explain.

We plan to work with many Alabama Community Colleges. In the future most Alabama Community colleges could be included.

Some examples are: Calhoun, Wallace State, Jefferson State, Drake, Coastal Alabama, Bishop State, Snead, among many others. We have already discussed this with Calhoun, and we are currently working to schedule meetings with additional community colleges.

## 13. Please describe the need and/or level of student demand for this program.

This is intended to improve workforce development in the areas of system administration and cyber operations in the state of Alabama.

The intent is to provide a much improved workforce for the low tech areas of Alabama, or for lower tech jobs. The graduates from this program are not intended, as a general thing, to compete for advanced high tech jobs. The primary goal for this program is to produce graduates who can protect rural hospitals in Alabama, or perhaps local government offices in rural parts of the state. Or perhaps some lower tech cybersecurity and system administration jobs in the Huntsville area, such as at factories could employ graduates of this program.

We believe that it is possible to get workforce funding from the state of Alabama for this program.

UAH hired a consulting company, Hanover Research, to look at the viability of a BS in Cyber Operations