

Academic Program Proposals for April 25, 2025

The following is a list of academic program proposals being reviewed for possible consideration for approval at the April 25, 2025, Arkansas Higher Education Coordinating Board meeting. The summary contents are subject to change. The finalized version of the summaries will be available in the board book.

The institution's name, program title, and program summary are listed below. Contact ADHE for a copy of the proposals.

If you have concerns, objections, questions, or comments concerning a specific proposal, please send them to **Mason Campbell, Assistant Commissioner of Academic Affairs** (mason.campbell@adhe.edu) no later than April 1, 2025.

ARKANSAS NORTHEASTERN COLLEGE

ASSOCIATE OF APPLIED SCIENCE IN INDUSTRIAL MAINTENANCE
TECHNICAL CERTIFICATE IN INDUSTRIAL MAINTENANCE
CERTIFICATE OF PROFICIENCY IN INDUSTRIAL MAINTENANCE
CERTIFICATE OF PROFICIENCY IN AUTOMATION
CERTIFICATE OF PROFICIENCY IN MACHINE TOOL TECHNOLOGY

The administration and Board of Trustees of Arkansas Northeastern College (ANC) request approval to offer the Associate of Applied Science in Industrial Maintenance, Technical Certificate in Industrial Maintenance, Certificate of Proficiency in Industrial Maintenance, Certificate of Proficiency in Automation, and Certificate of Proficiency in Machine Tool Technology, effective Fall 2025.

ANC is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The Arkansas Northeastern College Board of Trustees approved the program on December 11, 2024.

Program Description

The proposed Industrial Maintenance program is designed to address the critical workforce need for skilled industrial maintenance technicians within the steel industry, steel service industries, and other manufacturing sectors in the region surrounding ANC. This program proposal is in direct response to industry demands for a trained and adaptable workforce capable of maintaining and optimizing advanced manufacturing equipment and systems.

The proposed Industrial Maintenance program will educate students in the areas of electricity/electronics, mechanics, welding, automation systems, manufacturing, machining operations, blueprint/schematics, industrial tools, and troubleshooting. It will provide students with the knowledge and skills required to secure high skill, high demand, and high wage employment in a variety of industries. Three Certificates of Proficiency, each 12 credit hours, and a 30 credit-hour Technical Certificate are

embedded in the 60 credit-hour Associate of Applied Science curriculum. These stackable credentials will give students the opportunity to earn nationally recognized industry credentials and local employer endorsed credentials while learning specific high-demand skillsets.

One full-time faculty will be hired to support the program. Based on enrollment, an additional full-time faculty member may be added in the future. The state-of-the-art Allied Tech building will house the proposed program and is well-equipped with a variety of classrooms, laboratories, and specialized equipment to deliver a comprehensive learning experience. Minimal new equipment will need to be purchased.

Program Need

Based on the workforce analysis provided to Arkansas Northeastern College by ADHE, there are currently 3,755 people within a one-hour radius of ANC employed in occupations linked to Industrial Mechanic and Maintenance Technicians with a median salary of \$61,900. For the same region, approximately 2,416 newly trained workers in Industrial Mechanic and Maintenance Technicians will be needed over the next seven years.

Several large steel-producing and steel-related companies, such as Nucor Steel, Big River Steel, Tenaris, Hybar, Viskase, Primetals, and Nucor Skyline, have contacted ANC for assistance in addressing the critical need for employees with industrial maintenance skills. In conjunction with ANC's workforce training division, The Solutions Group, these industry leaders expressed the need for a formalized degree program that would equip individuals with the foundational and advanced skills necessary to excel in industrial maintenance roles. Many of these same industry leaders serve on the program advisory board and played an integral role in the creation of the program's curriculum.

Program Expenditures and Funding

One full-time faculty member will be hired to support the program at a salary of \$66,000 and an anticipated start date of Summer 2025. A budget of \$15,000 per year for adjunct instructors and \$8,000 per year for faculty development is planned. Existing facilities will be used to deliver the proposed program. Minimal instructional equipment will need to be purchased. Approximately \$50,000 will be spent on tabletop lathes and mills with stands. Minimal renovations will be required. To support the program's needs, a 3-phase power upgrade will be implemented in key laboratories at a cost of \$8,000. ANC will also budget \$3,000 per year for CAD/CAM license renewal.

The proposed program will be funded by tuition and fees. The institution has also received a Perkins Grant for AY 2025-2025 in the amount of \$50,000 to support the implementation of the proposed program.

Program Duplication

Programs in Advanced Manufacturing and Industrial Maintenance are often difficult to delineate from one another. Similar programs are frequently assigned to either CIP category 15 – Engineering/Engineering-related Technologies/Technicians or CIP category 47 – Mechanic and Repair Technologies/Technicians. Specifically, the most common CIP code for Advanced Manufacturing is 15.0613 and for Industrial Maintenance is 47.0303, although there are several instances of crossover based on program intent or title.

For CIP code 47.0303, there are nine Arkansas public institutions offering similar programs: 3 associate degrees, 5 technical certificates, and 14 certificates of proficiency.

- University of Arkansas Monticello: AAS, TC, CP (3)
- Arkansas State University Newport: CP (3)
- Arkansas State University Three Rivers: CP
- Cossatot Community College of the University of Arkansas: TC, CP (2)
- East Arkansas Community College: TC, CP
- National Park College: TC, CP
- Southeast Arkansas College: AAS
- University of Arkansas Community College Hope-Texarkana: CP
- University of Arkansas Community College Morrilton: AAS, TC, CP (2)
- University of Arkansas Pulaski Technical College: CP

For CIP code 15.0613, there are three programs titled Industrial Maintenance or Mechanical Maintenance offered by Arkansas public institutions. South Arkansas College offers a Technical Certificate in Industrial Maintenance and Southern Arkansas University Tech offers a Certificate of Proficiency and Technical Certificate in Mechanical Maintenance.

Program Learning Outcomes

Upon successful completion, a student will be able to:

1. Demonstrate knowledge of industrial safety standards and practices to create a safe working environment.
2. Identify, utilize, and inventory appropriate tools and equipment used by industry technician professionals.
3. Apply troubleshooting techniques to diagnose and repair industrial equipment and systems.
4. Repair mechanical, electrical, and automation systems that are critical to efficient industry operations.
5. Read, interpret, and understand schematics, blueprints, and drawings to install, assemble, or maintain industrial machinery, equipment, and projects.
6. Utilize lathes, mills, and other machining tools to cut and shape materials with high precision and accuracy.

Program Enrollment and Graduation Projections

Certificate of Proficiency in Industrial Maintenance		
Academic Year	Projected Enrollment	Projected Graduates
2025-2026	55-60	15-25**
2026-2027	55-60	55-60
2027-2027	55-60	55-60
2028-2029	55-60	55-60
2029-2030	55-60	55-60

Certificate of Proficiency in Automation		
Academic Year	Projected Enrollment	Projected Graduates
2025-2026	55-60	15-25**
2026-2027	55-60	55-60
2027-2027	55-60	55-60
2028-2029	55-60	55-60
2029-2030	55-60	55-60

Certificate of Proficiency in Machine Tool Technology		
Academic Year	Projected Enrollment	Projected Graduates
2025-2026	55-60	15-25**
2026-2027	55-60	55-60
2027-2027	55-60	15-25
2028-2029	55-60	55-60
2029-2030	55-60	15-25

**Enrollment will be high, but these will be juniors in high school, and won't earn the credential until the next year, senior year.

Technical Certificate in Industrial Maintenance		
Academic Year	Projected Enrollment	Projected Graduates
2025-2026	15-20	15-20
2026-2027	15-20	15-20
2027-2027	15-25	15-25
2028-2029	15-25	15-25
2029-2030	15-25	15-25

Associate of Applied Science in Industrial Maintenance		
Academic Year	Projected Enrollment	Projected Graduates
2025 – 2026	15-20	
2026 – 2027	15-20	15-25
2027 – 2028	15-20	15-25
2028 – 2029	15-20	15-25
2029 – 2030	20-25	15-25

Program Curriculum

Certificate of Proficiency in Industrial Maintenance

CE	11003	Workplace Essentials
EL	15003	Basic Electricity I
ME	15023	Mechanical Drives and Bearings
ES	15003	Industrial Safety Administration

Certificate of Proficiency in Automation

<i>ME</i>	<i>15113</i>	<i>Maintenance Tools and Technology</i>
<i>ME</i>	<i>25063</i>	<i>Introduction to Automation</i>
<i>ME</i>	<i>15083</i>	<i>CAD/CAM Fundamentals</i>

3 credit-hour elective

Italics = New Courses

Certificate of Proficiency in Machine Tool Technology

<i>ME</i>	<i>15113</i>	<i>Maintenance Tools and Technology</i>
ES	15003	Industrial Safety Administration
<i>ME</i>	<i>25043</i>	<i>Manual Lathes</i>
<i>ME</i>	<i>25053</i>	<i>Manual Mills</i>

Italics = New Courses

Technical Certificate in Industrial Maintenance

CE	11003	Workplace Essentials
EL	15003	Basic Electricity I
ME	15023	Mechanical Drives and Bearings
ES	15003	Industrial Safety Administration
ME	15013	Basic Hydraulics and Pneumatics
WE	15033	Maintenance Welding
EL	25013	Industrial Motor Controls
EL	25033	Programmable Logic Controllers
<i>ME</i>	<i>15113</i>	<i>Maintenance Tools and Technology</i>
<i>ME</i>	<i>25063</i>	<i>Introduction to Automation</i>

Italics = New Courses

Associate of Applied Science in Industrial Maintenance

General Education – 15 credit hours

EN	12003	English Composition I
EN	12023	Technical Writing OR
EN	12013	English Composition II
CS	11033	Computer Applications
MA	14043	College Algebra OR
MA	14123	Quantitative Reasoning
SO	23013	Intro to Sociology OR

PY	23003	General Psychology
<u>Cored Courses</u> – 15 credit hours		
CE	11033	Workplace Essentials
ES	15003	Industrial Safety Administration
ME	15013	Basic Hydraulics and Pneumatics
ME	15023	Mechanical Drives & Bearings
ME	15033	Maintenance Welding
<u>Major Courses</u> – 30 credit hours		
EL	15003	Basic Electricity I
EL	25013	Industrial Motor Controls
EL	25033	Programmable Logic Controllers
EL	25043	Introduction to Electronics
<i>ME</i>	<i>15083</i>	<i>CAD/CAM Fundamentals</i>
<i>ME</i>	<i>25043</i>	<i>Manual Lathes</i>
<i>ME</i>	<i>25053</i>	<i>Manual Mills</i>
<i>ME</i>	<i>25063</i>	<i>Introduction to Automation</i>
<i>ME</i>	<i>15113</i>	<i>Maintenance Tools & Technology</i>
MT	15003	Intro to Manufacturing
<i>Italics = New Courses</i>		

UNIVERSITY OF ARKANSAS FORT SMITH

BACHELOR OF SCIENCE IN ADVANCED MANUFACTURING ENGINEERING CERTIFICATE OF PROFICIENCY IN ADVANCED MANUFACTURING

The administration of the University of Arkansas Fort Smith (UAFS) and Board of Trustees of the University of Arkansas System request approval to offer the Bachelor of Science in Advanced Manufacturing Engineering and Certificate of Proficiency in Advanced Manufacturing, effective Fall 2025.

UAFS is accredited by the Higher Learning Commission and the proposed program is within the role and scope established for the institution. The University of Arkansas System Board of Trustees will consider the program for approval on March 11-12, 2025.

Program Description

The proposed 120 credit-hour Bachelor of Science in Advanced Manufacturing Engineering blends courses in traditional and applied mechanical and electrical engineering with courses from business and data science. Graduates will be prepared to design, implement, maintain, and manage modern manufacturing systems that require knowledge in automation, device networking, systems integration, technical communication, project management, quality control, procurement, supply chain management, compliance, safety, and manufacturing processes.

The embedded 9 credit-hour Certificate of Proficiency in Advanced Manufacturing prepares graduates to apply technical and management principles in an advanced

manufacturing environment to achieve operational excellence. Graduates will apply technical skills such as quality assurance, risk analysis, process management, product management, and other necessary specialties in the field of technology management.

Two additional engineering faculty and one additional engineering staff will be hired to support the program. The proposed program will be funded by grants, endowments, and private gifts. These funds will support the renovation of classroom and lab spaces as well as the purchase of advanced manufacturing equipment/trainers.

Program Need

The number of manufacturing jobs in the Fort Smith area accounts for 16.4% of local area employment, which is twice the national average at 8.14%. Over the past three years, occupations linked to Manufacturing Engineering added 340 jobs in the region and are expected to need approximately 1,830 newly trained workers over the next seven years. Manufacturing and project management were among the most desired skills listed in current job ads. The regional manufacturing industries represented by the UAFS Advanced Manufacturing Board have experienced job growth of 1.3% over the past five years and project job growth of 1.0% over the next ten years.

UAFS administered a survey to major regional Fort Smith manufacturers where respondents were asked to rate their motivation to adopt advanced manufacturing in the next five years. The average response indicated a solid propensity to adopt advanced manufacturing technologies with 60% of respondents self-identifying as individuals actively driving change and advancing initiatives. Regional manufacturing partners including ABB, Hytrol, J+H Automation, Rheem, Walther Arms, and Williams, Weldon & Lick are committed to supporting the proposed program by

- Contributing funding, scholarship, and/or in-kind resources to support the program's implementation.
- Providing industry expertise and guidance in the development of curriculum materials and delivery.
- Serving as guest lecturers and providing case studies and real-world examples to enrich the learning experience.
- Providing access to their facilities and equipment for hands-on training experiences.
- Offering paid Capstone projects and internships to select students to support work-based learning experiences and to generate solutions to industry or business issues.
- Providing tuition support for enrolled employees.

Program Expenditures and Funding

Personnel expenses total \$379,250 for AY2025-2026, \$489,060 for AY2026-2027, and \$494,281 for AY2027-2028. This includes the salaries for the Engineering Department Head and new full-time faculty and staff, and faculty development. Portions of these salaries are funded by grants and endowments. Facility expenses are estimated at

\$200,000 for AY2025-2026 for renovations and technology upgrades and \$20,000 per year thereafter for technology maintenance.

UAFS has secured many sources of funding including a H.I.R.E.D. grant through the Arkansas Department of Commerce for \$4,000,000 of which \$2,744,937 is dedicated to purchasing instructional equipment and resources for the proposed program.

Additionally, UAFS also received a H.I.R.E.D. grant through the Arkansas Department of Education for \$1,700,000. The institution has also received a private gift of \$1,000,000 from ABB, a foundation gift of \$25,000 for an endowed scholarship, and a Pendergraft Endowed Chair. An Engineering program fee of \$50 per credit hour will also be charged.

Program Duplication

There are no other active bachelor programs similar to the proposed Bachelor of Science program in the state of Arkansas.

One certificate of proficiency program, with the same CIP code, comprised of upper-level courses is offered at Arkansas State University. Additionally, nine certificates of proficiency in Advanced Manufacturing are offered by public, two-year colleges in Arkansas.

Program Learning Outcomes

Upon successful completion of the Advanced Manufacturing Engineering bachelor's program, students will be able to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.

Upon successful completion of the Advanced Manufacturing certificate of proficiency, students will be able to:

1. Understand the dynamics of an advanced manufacturing organization and evaluate how it operates within a global environment.
2. Apply management and leadership skills to a production-based environment.
3. Use project management tools to manage and schedule tasks to completion.

4. Evaluate methods to achieve quality requirements in the production setting.

Program Enrollment and Graduation Projections

Academic Year	Projected Enrollment	Projected Graduates
2025 - 2026	30	
2026 - 2027	50	2 (5)
2027 - 2028	75	5 (10)
2028 - 2029	100	10 (20)
2029 - 2030	120	15 (30)

**Numbers shown in parentheses represent graduates of the Certificate of Proficiency*

Program Curriculum

Bachelor of Science in Advanced Manufacturing Engineering

General Education Core – 36 credit hours

English Composition – 6 credit hours

SPCH 10003 Introduction to Speech Communication

MATH 24004 Calculus I

PHYS 20343/20331 University Physics I/Lab

PHYS 20443/20431 University Physics II/Lab

Fine Arts – 3 credit hours

Humanities – 3 credit hours

History/Government – 3 credit hours

ECON22003 Principles of Microeconomics

Social Science – 3 credit hours

Major Requirements – 66 credit hours

MFGE 10001 Introduction to Advanced Manufacturing

MFGE 20003 GD&T - Geometric Dimensioning and Tolerancing

MFGE 31003 CNC & Manufacturing Processes Planning

MFGE 32003 Fluid Power

MFGE 33003 Measurements and Instrumentation

MFGE 34003 Robotics Systems and Automation

MFGE 35003 Engineering Economics

MFGE 36003 Quality Planning and Control

MFGE 41003 Smart Manufacturing

MFGE 45103 Senior Design Project I

MFGE 45203 Senior Design Project II

MFGE 46003 Managing the Advanced Manufacturing Enterprise

ELTE 12433 Introduction to Programming

AMST 25103 PLC Applications

ELEG 21043/21131 Electric Circuits I/Lab

ELEG 29003 Digital Systems I

MEEG 20003 Engineering Statics

MEEG 20041 CAD for Engineering

MEEG 21003 Introduction to Machine Analysis

MEEG 23003 Introduction to Materials
MGMT 41343 Project Management
Upper-level technical electives – choose 6 hours from the following:
CSCE 43233 Data Analytics
CSCE 43303 Machine Learning
MFGE 37003 Product Design and Development
MFGE 47003 Advanced Manufacturing Design
MFGE 4675V Internship in Advanced Manufacturing Engineering
MGMT 35243 Operations Management
MGMT 35443 Global Supply Chain Management
Additional Degree Requirements – 18 credit hours
CHEM 14103/14101 College Chemistry I/Lab
MATH 25004 Calculus II
MATH 29174 Differential Equations
MATH 21003 Probability and Statistics I
STAT 35043 Mathematical Statistics I
Italics = New Courses

Certificate of Proficiency in Advanced Manufacturing

MFGE 36003 Quality Planning and Control
MGMT 41343 Project Management
MFGE 46003 Managing the Advanced Manufacturing Enterprise
Italics = New Courses

OUT-OF-STATE AND ARKANSAS PRIVATE INSTITUTIONS

The following applications may be reviewed by ADHE for possible consideration at the AHECB meeting in April 2025.

University of Southern California, Los Angeles, California
Master of Science in Applied Technology and Aging
Master of Science in Clinical Trail Management
Master of Science in Spatial Data Science