



TECH FOR TECH

2020



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TECH FOR TECH EXECUTIVE SUMMARY

On February 19, 2020, the Arkansas State Chamber of Commerce and the Russellville Area Chamber of Commerce sponsored “Tech for Tech” in partnership with Arkansas Tech University. Industry leaders from across the state, government stakeholders and higher education representatives gathered to define and discuss the current and future in-demand technological skills required for Arkansas’ workforce.

Key insights and recommendations were subsequently reviewed by academic leaders at Arkansas Tech for incorporation into the educational experience and curriculum at the university.

As technologies continue to evolve, collaboration between industry and educational institutions will be a critical factor in growing a diversely skilled workforce.



PANELISTS AND SPEAKERS

**"TECHNOLOGY IS RAPIDLY
EVOLVING, AND WE
MUST ENSURE THAT THE
EDUCATION WE PROVIDE
EVOLVES ALONGSIDE TO
SUPPORT OUR STUDENT
LEARNING AND LONG-
TERM SUCCESS."**

*Dr. Barbara Johnson
Vice President of Academic Affairs
Arkansas Tech University*



INDUSTRY TECHNOLOGICAL NEEDS PRE-EVENT SURVEY

Arkansas Tech University surveyed industry representatives prior to the Tech for Tech industry forum to better understand the industry needs. A total of 15 industry representatives responded to our survey. Key highlights of the survey are as follows:

What are the technical majors that your company recruits for internships and entry-level positions?

44% of responding industry representatives recruit students within the applied sciences programs (engineering and healthcare are the top two specific program areas), 38% recruit students in business programs, 25% recruit students in IT-related programs at Arkansas Tech University. The remaining 3% are recruited from various areas such as foreign and English language arts.

Do you expect to hire from different majors in the next 10 years?

40% of responding industry indicated that they expect to hire from different majors in the next 10 years to increase the diversity of the workforce and adapt to the evolving technological skills that will be required. A few companies noted an aging workforce that will be retiring within the next 10 years. 27% of respondents noted that they do not expect to hire from different majors within the next 10 years and the remaining respondents were unsure.

If you have hired ATU students in the past, are there any gaps in their knowledge that we should address?

67% of respondents stated no known gaps in student knowledge. The following comments from industry respondents were noted:

- “I think the major change that we have seen in graduating students, and this is not specific to ATU, is more of a task-focused orientation to understanding their profession. I don't think students graduating these days possess the critical thinking skills that we've seen in past years.”
- “Soft skills and people skills.”
- “More in-depth programming skills on specific languages, as opposed to, a broad brush of everything.”

INDUSTRY RECOMMENDATIONS

ALL SECTORS

- All sectors recommended a greater focus on students' ability to communicate and collaborate in a team environment. Industry recognized that technical skills are extremely important. However, students often lack soft skills and the ability to work within a diverse workforce that can be gleaned from liberal arts courses.
- Students should be able to solve problems independently or be able to lead a group to a solution. Both require adaptability, creativity, innovation and the ability to communicate with a diverse work group.
- Increase the number of students completing internships and capstone courses in partnership with industries in various fields of study. Providing students with direct experience in fields of study will allow them to apply their knowledge as they prepare for the workforce.
- Increase faculty externship opportunities to allow faculty to engage with industry and update their curricula to align with the workforce skills and demands.
- Engage in virtual or in-person facility tours for faculty and students as an added experience and means of engagement as well as inviting industry representatives to campus, virtually or in-person, to share practical applications of conceptual knowledge.
- Industry participants recommended more open forums for industry and educator collaboration. Industry representatives would like for ATU educators to become as nimble as the industries are expected to be as demands change and evolve over time.

TECHNOLOGY

- Provide technological skill development training that includes program drafting, technological troubleshooting, ability to work with cloud-based and server-less operations.
- Provide all students with a broad understanding of technology. Industry representatives noted the rapidly evolving nature of technology and emphasized the need for student's to be adaptable to new and changing technologies. All industry representatives expressed the importance of students possessing critical thinking skills that allow for technological innovation.
- Scale up cybersecurity offerings at Arkansas Tech to meet growing demands of industry to provide advanced security for data.
- Future instruction must focus on a deeper knowledge of cloud data and troubleshooting skills and virtualization. New programs should focus on degrees within information technology such as computer and information science and engineering technology.



INDUSTRY RECOMMENDATIONS

ENGINEERING & MANUFACTURING

- Engineering is moving toward software applications programmed for specific tasks, including automated analysis, robotics and use of rovers and drones for hazardous operations. These training applications incorporate augmented and virtual reality. ATU needs to ensure students understand machine diagrams and can troubleshoot equipment, collect and analyze data and learn via the cloud or on the fly. Since technology is ever-changing, ATU must prepare students to adapt and think creatively.
- Provide students with application and practical skills throughout their educational experience to expose them to more data-driven automation techniques. For example, a freshman could work on projects that introduce them to industrial robotics and seniors could work with industry on a capstone project.
- The manufacturing sector is rapidly evolving to include more automation. Manufacturing automation encompasses demands, data, tracking and future trends. Automation is cutting costs for industry while increasing efficiency and productivity. Continued and greater focus on automation relevant to manufacturing industry needs is recommended.
- Focus on the manufacturing side of engineering as the curriculum has gaps in area between design and manufacturing. The manufacturing industry requires employees with knowledge of automation, data and augmented reality, including work in AutoCAD. Coding is also an important skill for businesses to ensure movement of product.

INDUSTRY RECOMMENDATIONS

HEALTHCARE

- The healthcare industry recommended an evolving focus on technologies that touch nearly every facet of their industry. They also recommended a continued focus on empathy in preparing graduates who are technically trained and emotionally prepared to serve in Arkansas' health care professional workforce.
- ATU should consider adding radiology and phlebotomy programs and include preceptorships.
- Utilization of skills fairs, stroke classes, nurse externships, professional practice programs and specific internships for EMS/stenography/echo tech could be beneficial.
- Students in healthcare fields sometimes present weaknesses in writing and communication skills. ATU should provide students with critical feedback and direction on their written communication skills. One participant suggested that embedding librarians into some classes to assist students with research for writing assignments could help students with enhancing their written communication skills.
- Telemedicine training should be considered. However, most healthcare professionals commented that there is no substitute for manual training when technology is down. ATU health programs should incorporate virtual reality, teaching through patient portal programs and demonstrating how IT transfers information from clinic to hospitals.
- In the U.S., physician decline is a reality, so healthcare professionals are exploring fast tracks for moving medical students into their residency plan. ATU may consider investing in advanced nurse practitioner degree programs.

ACADEMIC PROGRAMS & RESOURCES

- Provide students with resources to aid them along their career path, including resume guidance, practice interviews, career fairs, teamwork projects and assistance with communication skills. Provide academic advising to ensure students are aware of opportunities that align with their skill sets.
- ATU should explore accelerator programs, innovation hubs, venture centers and more opportunities to promote entrepreneurship.
- The timber industry in Arkansas is currently hiring from Alabama and other states in the field of forestry. It was recommended that ATU explore degree pathways in forestry.
- Partner with other institutions of higher education to provide valuable transfer pathways.
- ATU should consider a leadership minor that focuses on communication and collaboration skills, allowing for development of soft skills in areas such as applied leadership and organizational change.



ATU RESPONSE

- ATU created an associate degree in manufacturing as an additional credential for students pursuing a bachelor's degree in mechanical engineering. The degree is slated for implementation in fall 2021.
- Identify ways to inform industry partners of the breadth of academic programs offered at ATU.
- Faculty teaching in the interdisciplinary leadership minor will explore collaboration opportunities with professional and academic advisors to encourage students to pursue minors in order to complement training in academic programs and prepare for career success.
- The General Education Curriculum Committee is refocusing efforts on facilitating stronger skills in communication, critical thinking and teamwork.
- Norman Career Services' corporate partners have included a new option of employer on-site virtual facility tours in addition to on-site facility tours.
- ELEVATE (online career advancement academy with six professional ready modules) is being revamped to better address soft skills competencies.
- The Arkansas Tech Ozark Campus and Arkansas Tech Career Center will continue to build and expand short term training programs for our regional employers in high demand fields.

Tech for Tech 2020 provided invaluable insight and recommendations that continue to be actively used to enhance employability of students through new degree programs, virtual experiences and focus on 'soft' or essential skills. The Tech for Tech event presented an opportunity to establish future partnerships for the benefit of faculty, students and employers. Arkansas Tech University will continue to collaborate with Arkansas industry to provide ongoing insight that is beneficial not only for preparing students for the workforce but to facilitate success of graduates on-the-job. We hope to continually evolve alongside the changing demands of our partners to better prepare our students and the communities they will serve.

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