
Section Three

Higher Education

Knowledge is a key ingredient of the New Economy. To survive in the 21st century, companies will depend on their ability to find highly educated and skilled workers. Fortunately, firms that locate in Greater Phoenix are well positioned to take advantage of an exceptional pool of students graduating from the area's educational institutions. Arizona State University is the nation's third-largest university. The Maricopa Community Colleges make up the largest community college system in the country. Couple these institutions with the many fine private colleges in the area, and it becomes clear that the large number of graduating students make it easy for Greater Phoenix companies to find young, talented workers.

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3.0 Higher Education Institutions

Greater Phoenix offers a variety of higher education opportunities

Greater Phoenix has a variety of higher educational opportunities that produce a steady flow of new work force entrants, as well as provide opportunities for continuing education and customized training for existing area employees and businesses.

- More than 367,000 students are enrolled in institutions of higher education in Greater Phoenix
- The region offers a variety of public and private universities, and a nationally recognized network of community colleges
- Arizona State University has three primary locations across the metropolitan area
- There are 10 private universities that offer bachelors and graduate degrees in Greater Phoenix

Higher Education Institutions-Greater Phoenix

Map No.	School	2004 Fall Enrollment	Public/Private	Highest Degree
State Universities				
1	Arizona State University	49,171	Public	Doctorate
2	Arizona State University West	7,105	Public	Masters
3	Northern Arizona University	6,000	Public	Masters
4	Arizona State University East	4,000	Public	Doctorate
Other Universities				
5	University of Phoenix	157,373	Private	Doctorate
6	Grand Canyon University	4,500	Private	Masters
7	Western International University	4,500	Private	Masters
8	Ottawa University	2,618	Private	Masters
9	Embry Riddle University	2,250	Private	Masters
10	DeVry Institute of Technology	1,924	Private	Masters
11	Midwestern University	1,284	Private	Doctorate
12	A.T. Still University	1,000	Private	Masters*
13	Thunderbird - The Garvin School of Int'l Business	802	Private	Masters*
Community Colleges				
14	Mesa	27,332	Public	Associate
15	Glendale	20,649	Public	Associate
16	Rio Salado	16,092	Public	Associate
17	Phoenix	12,720	Public	Associate
18	Scottsdale	11,479	Public	Associate
19	Chandler/Gilbert	8,663	Public	Associate
20	Paradise Valley	8,516	Public	Associate
21	Gateway	7,583	Public	Associate
22	Estrella Mountain	5,947	Public	Associate
23	South Mountain	4,293	Public	Associate
Other Institutions				
24	Maricopa Skill Center	5,000	Public	Certificate
25	Universal Technical Institute	4,100	Private	Associate
26	Apollo College	4,000	Private	Associate
27	Collins College	2,143	Private	Bachelors
28	Everest College	600	Private	Bachelors
29	High Tech Institute		Private	Associate
30	The Art Institute of Phoenix		Private	Bachelors

* Only graduate degrees are awarded at these institutions.

Source: *The Business Journal Book of Lists, 2005*

Figure 3-2
Map of Colleges and Universities

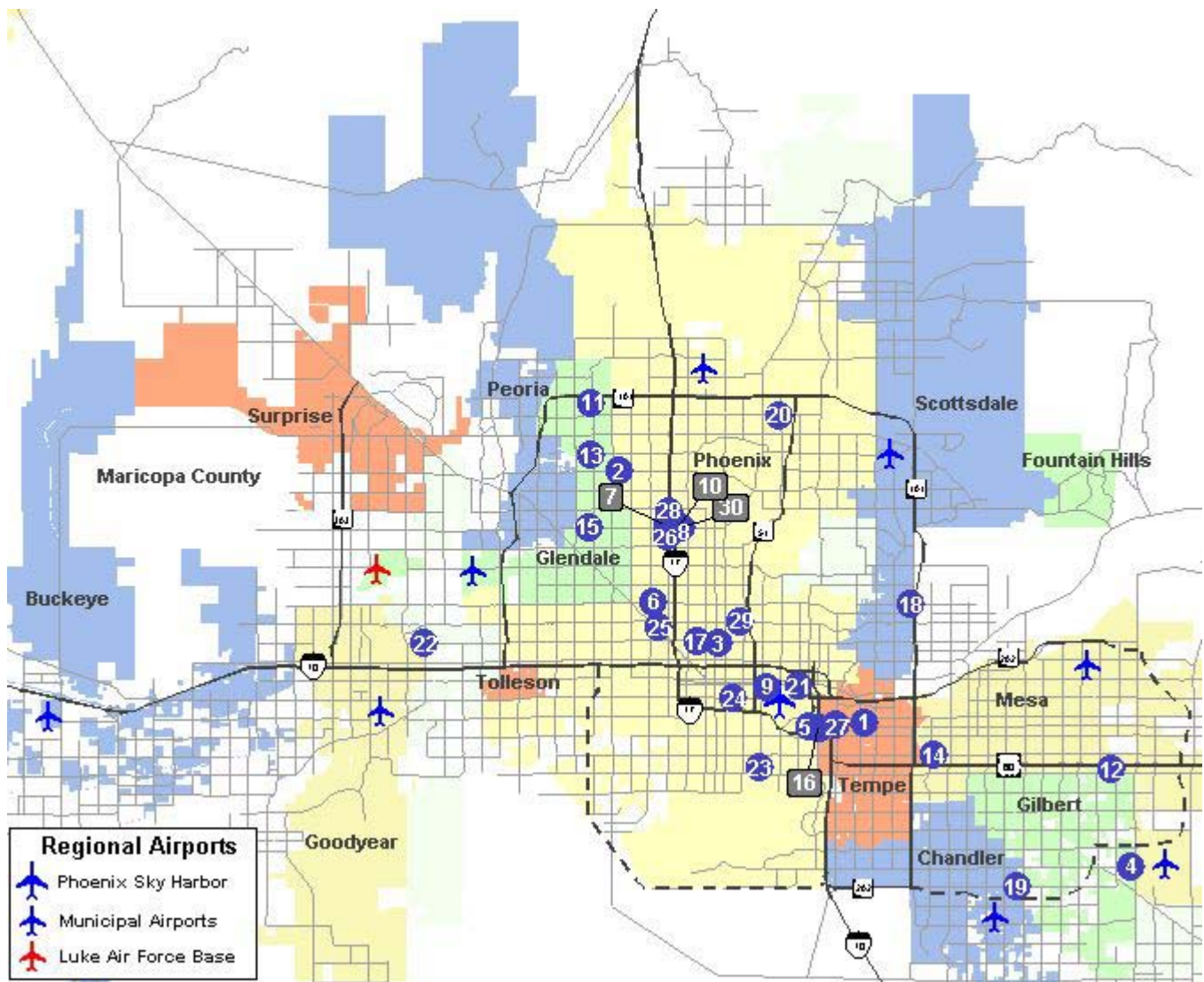


Figure 3-3**Postsecondary Annual Degrees Conferred By Major, Arizona Public Universities 2003-2004**

	Arizona State University (Tempe)			University of Arizona (Tucson)			Northern Arizona University (Flagstaff)			Total Degrees Conferred by Arizona Public Universities		
	Masters/			Masters/			Masters/			Masters/		
	Bachelor	Doctorate	Total	Bachelor	Doctorate	Total	Bachelor	Doctorate	Total	Bachelor	Doctorate	Total
Business	1,266	663	1,929	955	259	1,214	397	53	450	2,618	975	3,593
Accounting	182	20	202	107	25	132	47	0	47	336	45	381
Finance	253	0	253	160	1	161	57	0	57	470	1	471
Bus Admin, Management	210	586	796	131	144	275	105	28	133	446	758	1,204
Marketing	313	0	313	180	0	180	62	0	62	555	0	555
Economics	39	20	59	143	5	148	16	0	16	198	25	223
Computer Info Systems	87	0	87	159	43	202	61	0	61	307	43	350
Other	182	37	219	75	41	116	49	25	74	306	103	409
Communications	417	11	428	325	10	335	5	0	5	747	21	768
Computer Science	155	129	284	95	25	120	21	0	21	271	154	425
Education	592	542	1,134	384	264	648	504	1,689	2,193	1,480	2,495	3,975
Engineering	581	457	1,038	403	228	631	63	10	73	1,047	695	1,742
Bioengineering	53	17	70	0	0	0	0	0	0	53	17	70
Chemical	39	17	56	26	12	38	0	0	0	65	29	94
Civil	57	32	89	38	12	50	12	0	12	107	44	151
Construction	73	25	98	0	0	0	0	0	0	73	25	98
Electrical	128	223	351	71	90	161	26	0	26	225	313	538
Industrial	29	97	126	9	31	40	0	0	0	38	128	166
Mechanical	89	21	110	89	45	134	17	0	17	195	66	261
Aerospace	26	8	34	29	7	36	0	0	0	55	15	70
Other	87	17	104	141	31	172	8	10	18	236	58	294
Physical/Biological Science	157	60	217	283	101	384	64	70	134	504	231	735
Chemistry	16	21	37	30	38	68	7	5	12	53	64	117
Physics	9	9	18	21	8	29	12	0	12	42	17	59
Mathematics	47	24	71	31	8	39	23	6	29	101	38	139
Biochemistry	25	0	25	43	4	47	0	0	0	68	4	72
Molecular & Cellular												
Biology	34	4	38	115	6	121	1	0	1	150	10	160
Speech & Hearing Science	26	2	28	43	37	80	21	59	80	90	98	188
Health Sciences	192	56	248	240	279	519	153	107	260	585	271	615
Other Majors	3,686	1,046	4,732	2,618	1,022	3,640	1,723	195	1,918	8,027	2,263	10,290
Total Degrees Conferred	7,046	2,964	10,010	5,303	2,188	7,491	2,930	2,124	5,054	15,279	7,276	22,555

Source: ASU Office of Institutional Analysis; U of A Decision and Planning Support; NAU Planning & Institutional Research.

3.1 Arizona State University

Arizona State University, serving over 57,000 students at four anchor campuses and numerous extended campus locations, is one of the largest public universities in the United States. ASU strives to provide the highest quality educational experiences and opportunities to its students. There are 87 bachelors, 95 masters, and 48 doctoral, and one law degree programs offered at ASU.

The **W.P. Carey School of Business** offers outstanding opportunities for undergraduate and graduate students. The W.P. Carey School of Business, formerly known as the ASU College of Business, was named in early 2003 after New York businessman William Polk Carey made a generous \$50 million donation. The School distinguishes itself among the top-ranked undergraduate programs; it was ranked 25th in the nation by *U.S. News and World Report* 2004. Undergraduates may choose from eight majors, including some of the most highly ranked programs in the country (Supply Chain Management ranked 5th, Accounting ranked 15th, Marketing ranked 16th, Information Systems is 17th, and Management ranked 19th in the nation by *US News and World Report* 2004). By offering its most talented students an honors program within the School, business graduates make up over 33 percent of ASU's honors graduates.

The graduate programs in the W.P. Carey School of Business include six MBA programs -- the day program (which is full-time), the evening program, the executive program, the corporate program, the online program, and the evening technology program for technology professionals; the school also offers two doctoral programs. The April 2004 *US News and World Report* ranked the W.P. Carey MBA day program 14th among the nation's public programs and 29th among the 365 accredited MBA programs nationwide. The W.P. Carey MBA evening program ranks 17th in the nation, while the MBA in Supply Chain Management Specialization ranks 8th, and the MBA in Information Technology ranks 19th in the nation for 2004 by *U.S. News*. The W.P. Carey MBA for Executives is Greater Phoenix's most prestigious general managerial degree program for professionals and upper level executives. The Corporate Program delivers the power of an elite, full-time program to high potential corporate employee groups without separating them from their jobs or depriving the organization of their leadership. The online program, which started in January of 2004, provides students with a distinctive and quality degree program that is also flexible and convenient. The MBA in Information Technology is designed specifically for students in manufacturing and other high technology industries and is team-taught by faculty from the School of Business and the School of Engineering and Applied Sciences.

The **Ira A. Fulton School of Engineering and Applied Sciences** at Arizona State University has distinguished itself with a number of highly rated programs and award winning faculty that prepare students for success in technically-orientated careers. In 2003, the school received a \$50 million gift from homebuilder Ira A. Fulton, which will help the school continue to excel and improve its numerous programs. Departments include the Harrington Department of Bioengineering, Chemical and Materials Engineering, Civil and Environmental Engineering, Computer Science and Engineering, Electrical Engineering, Industrial Engineering, Mechanical and Aerospace Engineering, and the Del E. Webb School of Construction. The School offers both undergraduate and graduate degrees in engineering, as well as several continuing education programs. Three years ago, the School of Engineering established Connection One, a research center sponsored by the National Science Foundation, to work on communication circuits and systems.

Figure 3-4

Degrees Awarded by College Arizona State University 2002-2003

College	Degrees Awarded		
	Undergraduate	Graduate	Total
Architecture	151	93	244
Business	1,387	685	2,072
DUAS	632	0	632
Education	437	488	925
Engineering	671	480	1,151
Fine Arts	342	108	450
Graduate College	0	13	13
Law	0	195	195
Liberal Arts	1,844	412	2,256
Nursing	198	40	238
Public Programs	1,103	334	1,437
Other	1,801	389	2,190
Total	8,566	3,237	11,803

Source: ASU Office of Institutional Analysis, 2004.

Arizona State is also recognized nationally as a research institution, and one of only 151 universities designated as a Doctoral/Research University-Extensive (Research I University). Here are a few examples of some of these research activities.

The Institute for Manufacturing Enterprise Systems is a collaborative effort involving the Ira A. Fulton School of Engineering and Applied Sciences, the W.P. Carey School of Business, and Motorola. The Colleges, along with industry representatives, are working together to become a world-class Global Manufacturing program by developing curriculum and supporting research in the manufacturing area. The Institute will be involved in project areas such as software solutions, knowledge engineering, operations management, and supply network integration.

The Center for Solid State Electronics Research is a collection of faculty, post-doctoral researchers, and students from the Electrical, Chemical, Bioengineering, Mechanical Engineering, Materials Science, and Industrial Engineering Departments of Arizona State University, working on microelectronics research. Cross-disciplinary research efforts include Molecular Beam Epitaxy and Optoelectronic Devices, Nanostructures, Focused Ion Beams, Low Power Electronics, Bio and Molecular Electronics, and Material Process Fundamentals.

The National Center for Sustainable Water Supply is a collaboration effort to address fundamental problems with the sustainability of water reuse management practices within the arid and semi-arid regions of the United States. Arizona State University's Department of Civil and Environmental Engineering has partnered with many institutions in this effort, including: the University of Arizona, Stanford University, the University of Colorado-Boulder, the Colorado School of Mines, and many government agencies across the country, including the Environmental Protection Agency.

The Biodesign Institute has a mission to "improve health and quality of life through use-inspired biosystems research and effective multidisciplinary partnerships." The Institute was designed to integrate research in systems biology and neurobiology with advances in biomimetic materials, computing, directed molecular assembly at mesonanoscale, and optoelectronics. Linking these diverse fields may inspire new applications in medicine, agriculture, and environmental management.

The Arizona Partnership for Advancing Technology in Housing is a regional effort to promote research and development in the Arizona homebuilding industry. The expected outcome of this collaboration is to produce innovative results that will provide housing of higher value at a reduced cost. Arizona State University is working with five major homebuilders in Arizona, the Home Builders Association of Central Arizona, and PATH (a White House Initiative aimed at bringing new technology to the homebuilding industry).

Arizona State University West

ASU West currently offers 38 baccalaureate and master's degree programs, as well as specialized minors and programs leading to professional certificates. Degree programs are offered through five academic units including College of Arts & Sciences, College of Education, College of Human Services, Division of Collaborative Programs, and the School of Management. In 2001, ASU West became an accredited four-year university. ASU West offers programs to students such as learning communities, a program design for freshman that places them in groups of thirty that take two or more linked classes together; the Learning Enhancement Center that offers writing support and tutoring; and the West Campus Advising Center, which assists students in transferring and finding and choosing a major. With an enrollment of 7,000 undergraduate and graduate students, ASU West provides a small college atmosphere, yet students have the advantage of all the on- and off-campus resources of a nationally recognized, Research I and Pacific-10 Conference University.

Arizona State University East

ASU East, located on the 600-acre Williams Campus, is home of the University's highly respected College of Technology and Applied Sciences and the Morrison School of Agribusiness and Resource Management, both of which are the only bachelors and masters programs of their kind in Arizona; and is also home of the East College. Additionally, the Arizona Real Estate Center and the Real Estate program have recently moved to the East campus. Enrollment at ASU East is approximately 3,500 and is expected to increase over the next few years. ASU East has joined with the Chandler-Gilbert Community College (CGCC) in the new Partnership in Baccalaureate Education. Through this partnership, CGCC provides the lower division general education and major prerequisite courses, while ASU East provides upper division general education and required courses for the majors. ASU East currently offers 27 degree programs in its major academic units. The newest programs include the Bachelors of Science and Bachelors of Arts in Human Health Studies, and Bachelors of Science and Masters of Science Degrees in Exercise and Wellness, Applied Biological Sciences, and Nutrition.

3.2 Maricopa Community Colleges

Greater Phoenix has an excellent community college system through the Maricopa Community College District (MCCD). The district serves more than 230,000 full and part time students every year at ten colleges located throughout the metropolitan area, and is the largest community college system in the nation. In addition to offering 9,057 academic and occupational courses and 608 occupational programs with programs for new and re-entry students, the Community College District has been a valuable partner in training thousands of employees in Greater Phoenix. *MCCD has provided training for more than 250,000 employees at new and expanding companies since 1982, and is the largest provider of job training in Arizona.*

In addition to the 10 colleges, the District also includes two skill centers, which offer adult vocational training through a non-traditional approach to education. The skill centers offer self-paced learning, allowing students to enroll at any time. Training areas are established based on labor market demands. Occupational advisory committees representing area employers utilizing the skills approve the curriculum. One of the key missions of the skill centers is to provide businesses with employable workers who can meet their needs.

Figure 3-5

Degrees and Certificates Awarded

Maricopa Community Colleges 2003-2004

College	Certificates	Associate's Degree	Total
Chandler/Gilbert	176	276	176
Estrella Mountain	142	222	142
Gateway	986	341	986
Glendale	969	852	969
Mesa	553	1,462	553
Paradise Valley	285	308	285
Phoenix	1,181	821	1,181
Rio Salado	4,016	206	4,016
Scottsdale	323	522	323
South Mountain	16	168	16
Total	8,647	5,178	8,647

Source: Maricopa Community Colleges, Institutional Research, 2005.

MCCD has received national honors for its innovative work force development programs. One unique training program is the *Motorola University Partnership* at Mesa Community College (MCC). In this partnership it was found that the needs of Motorola did not easily fit in with the normal curriculum offered at MCC. In order to address this problem the college designed and continues to design classes and materials which better match the needs of already highly trained employees. Since the conception of the program it has moved to a 100,000 square foot training facility in the Arizona State Research Park only a few minutes away from MCC and Arizona State University's main campuses. More than 300 individual training programs are offered to groups within Motorola including manufacturing, engineering, sales, marketing, management and special projects. The District's relationship with Motorola also includes collaborating on other community college curriculum related to the semiconductor industry, providing faculty internships, and development of School-to-Work programs.

Through partnerships with General Motors, DaimlerChrysler and Ford, Glendale Community College (GCC) founded the Automotive Training Center. As part of the partnership Glendale Community College now offers a Degree of Automotive Technology Associate of Applied Science where the focus is placed on specialization within one carmaker. Students also have the ability to have paid internships, which can lead to full-time position upon their graduation. This Training Center offers further training and retraining to GM dealership technicians in the latest repair and service procedures. MCCD has the most extensive array of these automotive partnerships of any community college in the United States.

Another key industry program is the *Semiconductor Industry Education Partnership (SIEP)*. Due to the high demand for advanced technicians for the fast growing semiconductor industry in Greater Phoenix, this partnership has developed to increase the pipeline of students in semiconductor technical programs. The SIEP corporate partners include Intel, Motorola, Microchip Technologies, Medtronic MicroRel, Johnson Controls, Sitix of Phoenix (Sumitomo), Air Products and Chemicals, IPEC-Planar, and SGS Thompson. They market associate's degree programs in Semiconductor Manufacturing Process Technology, Circuit Mask Design Technology, and Facilities Management Technology. The combined efforts of the partners have resulting in more than double the amount of students enrolled in these three technical programs from 900 to over 1,800 in the past three years.

The Maricopa Community Colleges, with the help of the SIEP, have collaborated to form *the Maricopa Advanced Technology Education Center (MATEC)*. MATEC was funded through the National Science Foundation and established as a national center for developing of advanced technicians for the semiconductor industries, including the supplier base. MATEC has resulted in cooperative efforts with 54 other community colleges across the country for curriculum and faculty development. The partnerships with local semiconductor industries and the national consortia of colleges, enables the Maricopa Community Colleges and Greater Phoenix to be a key center of talent and expertise for advanced technical competence in semiconductor technologies.

3.3 Private Colleges and Universities

Greater Phoenix also offers a number of other private colleges and universities specializing in disciplines ranging from applied business and management to education, health sciences, engineering, and liberal arts.

Thunderbird American Graduate School of International Management is a tremendous resource for local employers. This world-renowned graduate school offers classes in international business practices, politics, economics, management, and foreign languages. The student community represents more than 60 nations and the now 34,000-strong Alumni Network is the world's most global business school alumni, with managers living and working in more than 135 nations. Thunderbird was recently ranked number one in International Business by the *U.S. News and World Report* for the ninth consecutive year.

Midwestern University opened in Glendale in 1995. It is an upper-division undergraduate and graduate degree institution specializing in health sciences. A new College of Pharmacy opened in 1998, one of only two institutions in the country to offer the accelerated, three-year Doctor of Pharmacy program. Today, the Glendale 124-acre campus provides numerous academic buildings, state-of-the-art laboratories, student housing and an on-campus osteopathic clinic. MWU in Glendale prepares students in the experiences needed to serve in rural and underserved urban communities.

The DeVry Institute of Technology is one of 24 DeVry campuses in North America offering coursework in electronics technology, computer information systems, business operations, telecommunications management, accounting and technical management. In 1987, DeVry merged with the **Keller Graduate School of Management**, which offers master's degrees in business administration, human resources management, and project management.

The University of Phoenix offers bachelor's and master's degrees, as well as professional certificate programs in a number of career fields including business, administration, accounting, management, technology management, information systems, education, counseling and nursing. The faculty is active in business and industry, and the university caters to students who are currently employed by offering classes in the evenings and on weekends. Fourteen of the 134 campuses nationwide are located in Greater Phoenix; the online program is also based in the region.

Ottawa University is a private university offering bachelor's degrees in a wide range of academic areas and master's programs in education, human resources, and counseling. There are four locations in Greater Phoenix.

Grand Canyon University is a fully accredited, four year, liberal arts school. Grand Canyon offers a full range of liberal arts and professional programs at the bachelor's level and master's degrees in Business and Education. Grand Canyon is Arizona's only private Christian liberal arts university.

Western International University has three campuses in Greater Phoenix and various corporate teaching locations. This institution specializes in education for working adults, allowing students to obtain bachelor's and master's degrees in Business, Technology and Behavioral Sciences. Western International University is part of the Apollo Group, the leading educational corporation in the United States.

Embry Riddle Aeronautical University has its main campus in Prescott, Arizona. However, Embry Riddle offers degree programs locally through its extended campus in Mesa in aircraft maintenance (associates), professional aeronautics (associates and bachelor's), management of technical operations (bachelors), and aeronautical science (masters). The university serves culturally diverse students pursuing careers in aviation and aerospace.

The University of Advancing Computer Technology is a small, private technical university that offers unique bachelor's degree programs in advancing computer technologies such as digital animation, multimedia, network engineering, mechanical design, and architectural/civil design. Bachelor's degree programs can be completed in less than three years. The Graduate College offers a Master of Science in Technology.

Kirksville College of Osteopathic Medicine is a professional and graduate institution, and the founding college of the osteopathic profession. The Southwest Center opened in 1995, marking the beginning of the first occupational and physician assistant programs in Arizona, as well as an innovative sports health program and a physical therapy program.

Apollo College has three locations in Greater Phoenix, each of which trains students to become valuable members of the Allied Health Industry. Training and practical experience through Apollo's 16 programs may provide the skills needed for entry into the health care field.

Universal Technical Institute offers training in Automotive, Diesel, Industrial and Motorcycle Technician Training, Heating, Ventilation, Air Conditioning and Refrigeration or Computer Aided Drafting (CAD). In addition, it offers Graduate Manufacturer Specific Training.

High Tech Institute offers associates degrees in Networking, Computer Information Systems, Computer Electronics, Digital Design & Animation, Internet Programming & Solutions, Medical Assistant and CAD.

Al Collins Graphic Design School provides education to their students in a number of career areas, including Visual Communication, Graphic Design, Computer Graphics, Computer Animation, Multimedia, Digital Video, Web Design, Interactive Multimedia, Computer Network Administration, E-commerce Programming and Local Area Networks.

The Bryman School has been training students for careers in the health care field since 1964. It was acquired by High Tech Institute, Inc. Phoenix in 1989. Programs offered include Medical Assistant, Dental Assistant, Surgical Technologist, Hospital Unit Coordinator, Massage Therapy, and Practical Technologist in Radiology.