

# An Analysis of



## Supply and Demand in South Carolina

**SEPTEMBER 2014**

*"Hiring and maintaining talent capable of working in high tech and advanced manufacturing facilities is crucial to enticing corporations to invest in our state. Our economic development is directly tied to our state having local talent and an environment conducive to focusing on STEM education."*

Kevin McGovern, GE Gas Turbine Division. Greenville, SC



Provided by the  
SC Department of Employment & Workforce  
Business Intelligence Department  
[www.scWorkforceInfo.com](http://www.scWorkforceInfo.com)

## **INTRODUCTION**

With advancements and innovations in technology, the workforce of South Carolina needs comprehensive knowledge of Science, Technology, Engineering, and Mathematics (STEM). Is South Carolina producing the right STEM knowledge at the right levels? What skills or certifications should our future STEM workers have? Where are the STEM jobs in South Carolina? Do STEM jobs really pay more than other occupations?

## **STEM OCCUPATIONS**

The US Department of Labor's Bureau of Labor Statistics (BLS) lists 184 occupations as STEM-related. These differ from other lists such as the Occupational Network (O\*Net) and the 16 career clusters used in SC public schools that were developed by the Perkins Collaborative Resource Network. The BLS list includes the usual science, technology, engineering, and math occupations, plus some occupations in the areas of information technology, management, education, healthcare, and sales.

## **SUPPLY AND DEMAND ANALYSIS**

In order to determine if there are any gaps between the workforce supply and the employer demand for STEM jobs, this report will look at both short-term data and long-term data. The last step is to pull all the data together to show where the gaps are.

## **OTHER STEM DATA**

This report also includes STEM information for online job advertisements, employer-requested certifications and soft skills, top counties for employment, and wages. Details on sources for data tables in this report can be found on the last page.

## SHORT-TERM SUPPLY AND DEMAND

This analysis uses college degrees earned for supply (Table 1) and online job advertisements for demand (Table 2). The Commission on Higher Education provided the degree information (all levels from certificate to Doctorate for 2013) and includes all public and private (but not for-profit) institutions of higher education in the state:

Demand is shown using current online job advertisements (last 4 months from 4/11/2014 to 8/8/2014). This series counts job ads, which may or may not have multiple job openings. In order to compare apples to apples, degrees were categorized using the occupational groups that are used for the online job ads.

TABLE 1			TABLE 2		
Degrees Conferred in STEM in SC, 2013			Job Advertisements for STEM Occupations in SC		
STEM Pathway	#	%	STEM Pathway	#	%
Engineering	1,339	9.3%	Engineering	4,183	11.0%
Health Science	8,137	56.5%	Health Science	19,888	52.1%
Information Technology	1,454	10.1%	Information Technology	10,168	26.6%
Math	308	2.1%	Math	2,258	5.9%
Science	2,569	17.8%	Science	847	2.2%
Technology	593	4.1%	Technology	828	2.2%
<i>TOTAL</i>	<i>14,400</i>	<i>100.0%</i>	<i>TOTAL</i>	<i>38,172</i>	<i>100.0%</i>

## SHORT-TERM SUPPLY-DEMAND ANALYSIS

Table 3 compares the percentages for short-term supply (degrees earned), demand (job advertisements), and the differences. In the Difference column, a negative number means that the supply is not keeping up with the demand, while a positive number shows that supply exceeds the demand.

TABLE 3			
Short-term Supply Demand Analysis for STEM in SC			
STEM Pathway	Supply Degrees	Demand Job Ads	Difference
Engineering	9.3%	11.0%	-1.7%
Health Science	56.5%	52.1%	4.4%
Information Tec	10.1%	26.6%	-16.5%
Math	2.1%	5.9%	-3.8%
Science	17.8%	2.2%	15.6%
Technology	4.1%	2.2%	1.9%

## LONG-TERM WORKFORCE SUPPLY AND DEMAND

Long-term supply (Table 4) can be illustrated through analyzing career clusters of twelfth graders in the state's public high schools. SC DEW produces long-term (10 year) occupational projections, which are currently available for 2012-22, and will serve as the source for long-term demand in this report (Table 5). The 10-year occupational projections have been categorized using career clusters to facilitate the comparison process.

**TABLE 4**  
**STEM Pathways Chosen by 12th Graders in SC, 2013**

STEM Pathway	#	%
Engineering	2,381	17.7%
Health Science	7,858	58.3%
Information Technology	1,108	8.2%
Math	428	3.2%
Science	1,158	8.6%
Technology	546	4.1%
<i>TOTAL</i>	<i>13,479</i>	<i>100.0%</i>

**TABLE 5**  
**Projections (2012-22) for STEM Occupations in SC**

STEM Pathway	#	%
Engineering	3,838	6.8%
Health Science	40,362	71.9%
Information Technology	7,014	12.5%
Math	3,702	6.6%
Science	664	1.2%
Technology	589	1.0%
<i>TOTAL</i>	<i>56,169</i>	<i>100.0%</i>

## LONG-TERM SUPPLY-DEMAND ANALYSIS

In Table 6, career clusters of high school seniors (supply) are compared to 2010-20 occupational projections (demand). As in the previous table, the last column shows the difference in the two. A negative number means there is not enough supply to keep up with employer demand. Positive numbers mean the supply exceeds the demand.

**TABLE 6**  
**Long-term Supply Demand Analysis for STEM in SC**

STEM Pathway	Supply Pathways	Demand Projections	Difference
Engineering	17.7%	6.8%	10.8%
Health Science	58.3%	71.9%	-13.6%
Information Technology	8.2%	12.5%	-4.3%
Math	3.2%	6.6%	-3.4%
Science	8.6%	1.2%	7.4%
Technology	4.1%	1.0%	3.0%

**SUMMARY OF SHORT- AND LONG-TERM DEMAND AND SUPPLY**

To summarize these findings, Table 7 transfers the numbers to occupational categories that may need to be adjusted for both short- and long-term planning.

<b>TABLE 7</b>	
<b>Short-term Analysis</b>	<b>Long-Term Analysis</b>
<b><u>Need more college students studying:</u></b>	<b><u>Need more high school students graduating with:</u></b>
Information Technology	Health Science
Math	Information Technology
Engineering	Math
<b><u>Need fewer college students studying:</u></b>	<b><u>Need fewer high school students graduating with:</u></b>
Science	Engineering
Health Science	Science
Technology	Technology

**CAVEATS**

- In some cases, degrees do not exist or are very limited for occupational groups. An example is Transportation and Material Moving where few jobs require a college degree. While this may skew the college degree needs, high school career clusters can play a vital role.
- Demand for Healthcare occupations has slowed, but there will continue to be a need, especially as the population ages.

## DECLINING STEM OCCUPATIONS

As shown in Table 8, online job advertisements for STEM occupations in healthcare-related jobs have seen some serious declines from 2013-2014. Of all ads with triple-digit declines, only one (Web Developers) is not in healthcare.

<b>TABLE 8</b>	
<b>Top 30 Declining STEM Online Job Advertisements, 2013-2014</b>	
Nurse Practitioners	-400
Occupational Therapy Assistants	-305
Occupational Therapists	-260
Home Health Aides	-158
Physical Therapist Assistants	-135
Physical Therapists	-134
Web Developers	-120
Physician Assistants	-102
Massage Therapists	-101
Software Developers, Applications	-93
Physicians and Surgeons, All Other	-86
Electrical Engineers	-84
Speech-Language Pathologists	-84
Software Developers, Systems Software	-79
Nuclear Engineers	-72
Critical Care Nurses	-71
Dental Assistants	-69
Mechanical Engineers	-55
Internists, General	-48
Software Quality Assurance Engineers and Testers	-47
Materials Engineers	-33
Family and General Practitioners	-29
Surgeons	-25
Healthcare Support Workers, All Other	-22
Electronics Engineering Technicians	-19
Phlebotomists	-16
Computer Programmers	-15
Chemical Technicians	-15
Radiologic Technologists	-13
Chemical Engineers	-12

## CERTIFICATIONS AND SKILLS

We can also look at professional certifications and skills mentioned in online ads (Table 9). Those interested in STEM careers would be wise to get a healthcare-related credential since 8 of the top 10 are related to healthcare. They may also want to hone their communication and teamwork skills.

TABLE 9
Top Certifications and Soft Skills Requested in STEM Job Ads, April-August 2014
<i>CERTIFICATIONS</i>
Certified Registered Nurse
Basic Life Support
Certification in Cardiopulmonary Resuscitation
Licensed Practical Nurse
Advanced Cardiac Life Support
Basic Cardiac Life Support
Top Secret Sensitive Compartmented Information
Physical Therapist Certification
Occupational Safety & Health Administration Certification
Board Certified (Physician)
<i>SOFT SKILLS</i>
Oral and written communication skills
Integrity
Team-oriented, teamwork
Troubleshooting
Problem solving
Project Management
Microsoft Office
Structured query language
Quality Assurance
Detail oriented

## GEOGRAPHY

Geographically, the metropolitan areas (Richland, Charleston, Greenville, and Spartanburg counties) are the most flush with STEM job ads, as shown in Table 10.

**TABLE 10**

<b>Top 25 Counties for STEM Job Ads, April-August 2014</b>
Richland County
Charleston County
Greenville County
Spartanburg County
Horry County
York County
Beaufort County
Florence County
Anderson County
Lexington County
Aiken County
Pickens County
Sumter County
Orangeburg County
Berkeley County
Oconee County
Cherokee County
Greenwood County
Georgetown County
Kershaw County
Dorchester County
Laurens County
Fairfield County
Colleton County
Jasper County



## WAGES

You may have heard that STEM occupations pay more than others. There is data to back up that claim in Table 11 which shows that all STEM occupational groups earn more than the state average for all occupations.

TABLE 11			
Wages for STEM Occupations in SC, 2013			

Occupational Group Title	Hourly	Entry Wage	ed Wage
Food Preparation and Serving Related Occupations	9.45	7.67	12.96
Personal Care and Service Occupations	10.68	7.76	15.83
Building and Grounds Cleaning and Maintenance Occupations	10.80	7.79	15.85
Healthcare Support Occupations	12.19	8.11	17.74
Transportation and Material Moving Occupations	14.56	8.16	24.55
Sales and Related Occupations	14.81	7.91	27.46
Farming, Fishing, and Forestry Occupations	14.83	8.29	23.26
Office and Administrative Support Occupations	15.13	8.73	23.09
Protective Service Occupations	15.96	8.65	25.59
Production Occupations	16.69	9.29	26.31
Construction and Extraction Occupations	17.81	10.11	27.58
Community and Social Service Occupations	18.40	10.27	29.57
<b>All Occupations</b>	<b>18.75</b>	<b>8.29</b>	<b>33.99</b>
Installation, Maintenance, and Repair Occupations	19.55	10.34	30.65
Arts, Design, Entertainment, Sports, and Media Occupations	20.06	9.30	34.04
Education, Training, and Library Occupations	21.90	8.78	34.79
Life, Physical, and Social Science Occupations	27.13	13.46	42.81
Business and Financial Operations Occupations	28.39	14.44	45.02
Computer and Mathematical Occupations	30.98	16.20	48.32
Healthcare Practitioners and Technical Occupations	31.82	12.82	57.31
Legal Occupations	34.93	13.44	70.14
Architecture and Engineering Occupations	35.34	18.75	54.80
Management Occupations	45.39	19.34	79.09

## SOURCES

- Table 1: SC Commission on Higher Education
- Table 2: Conference Board's Help Wanted Online® data series
- Table 4: SC Department of Education
- Table 5: SC Department of Employment and Workforce, Business Intelligence Department, Workforce Intelligence Unit
- Table 8, 9, and 10: Conference Board's Help Wanted Online® data series
- Table 11: SC Department of Employment and Workforce, Business Intelligence Department, Occupational Employment and Wages Unit

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