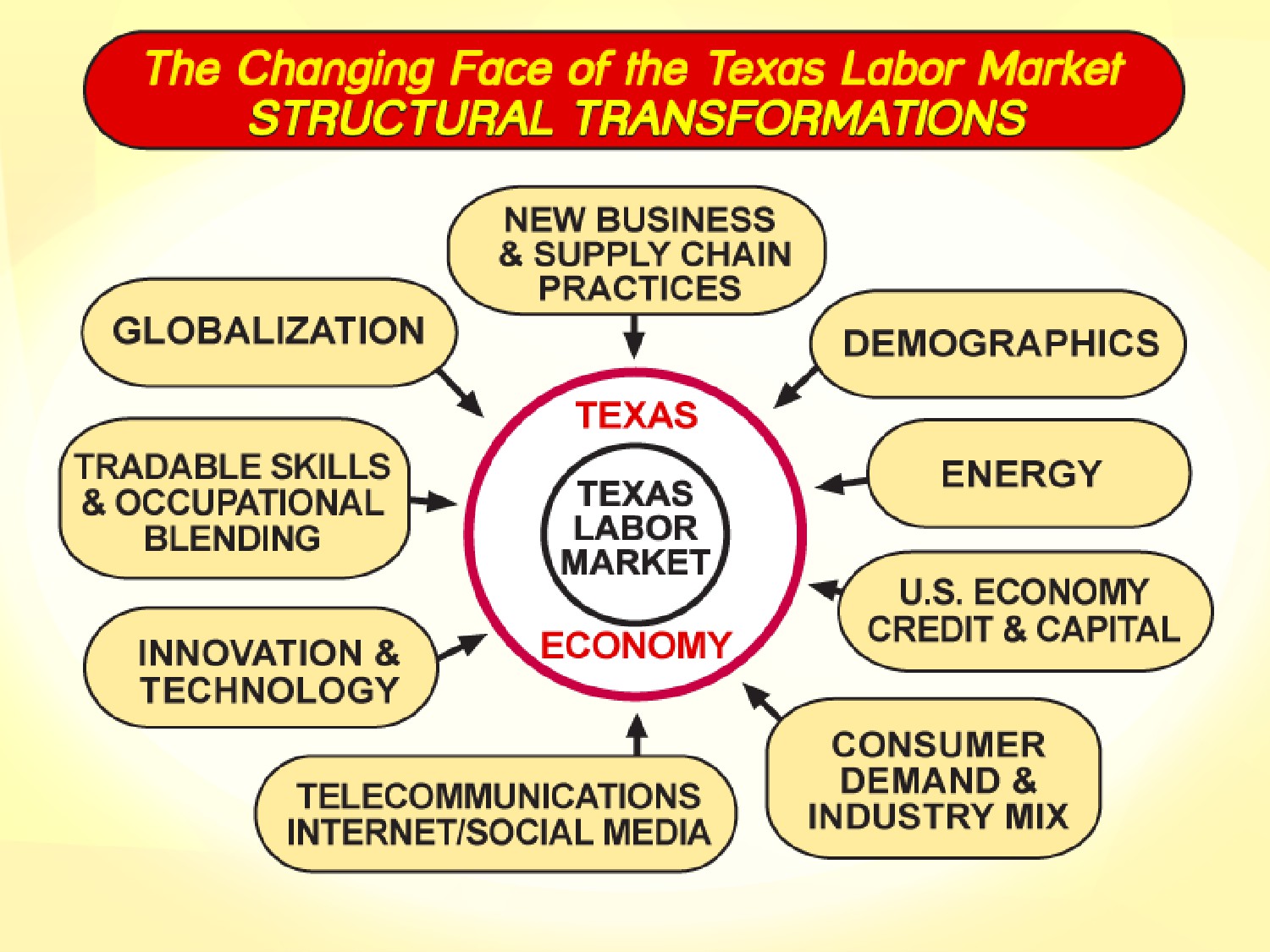
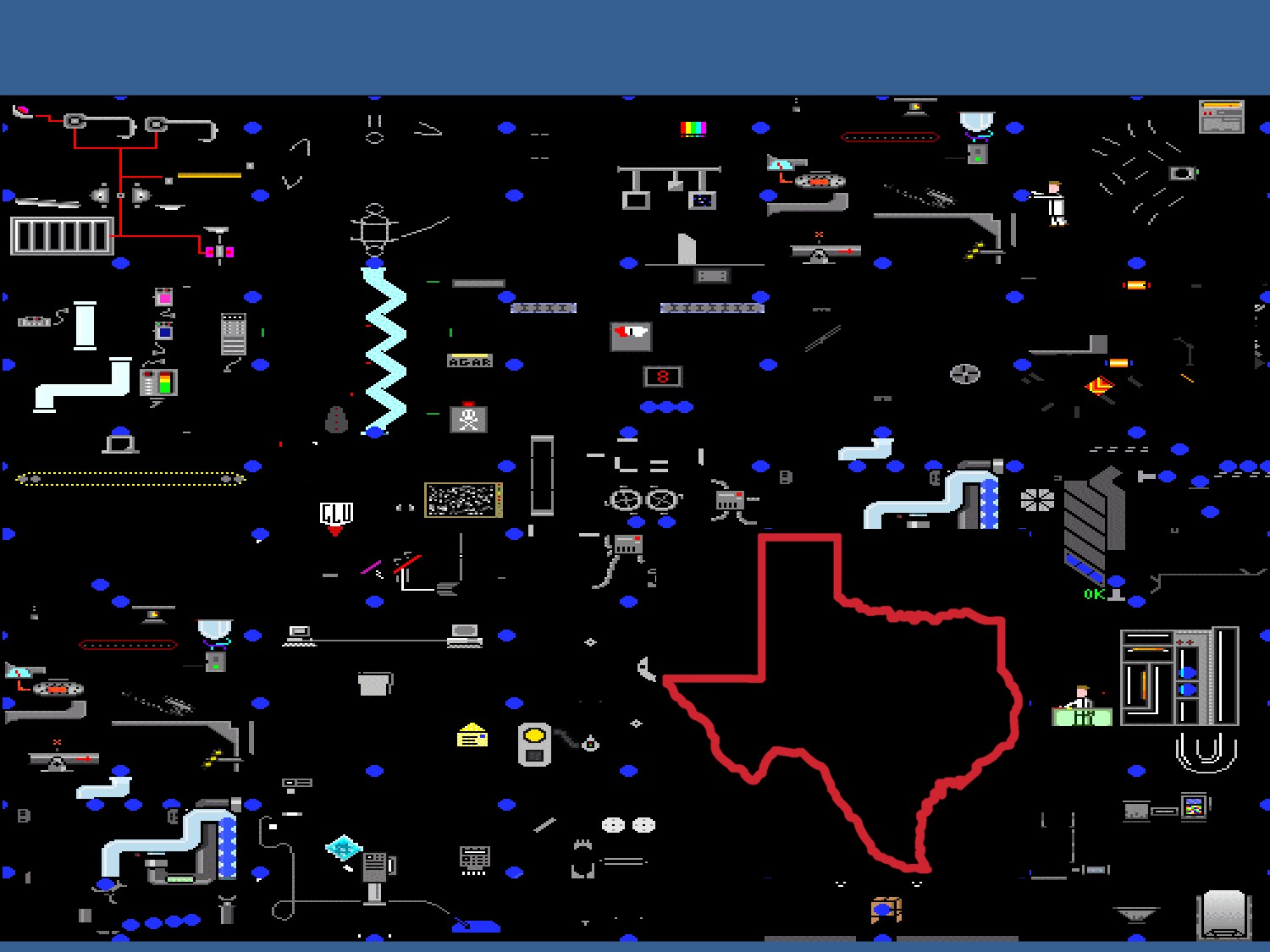


Aligning Education and   
Economy in Houston

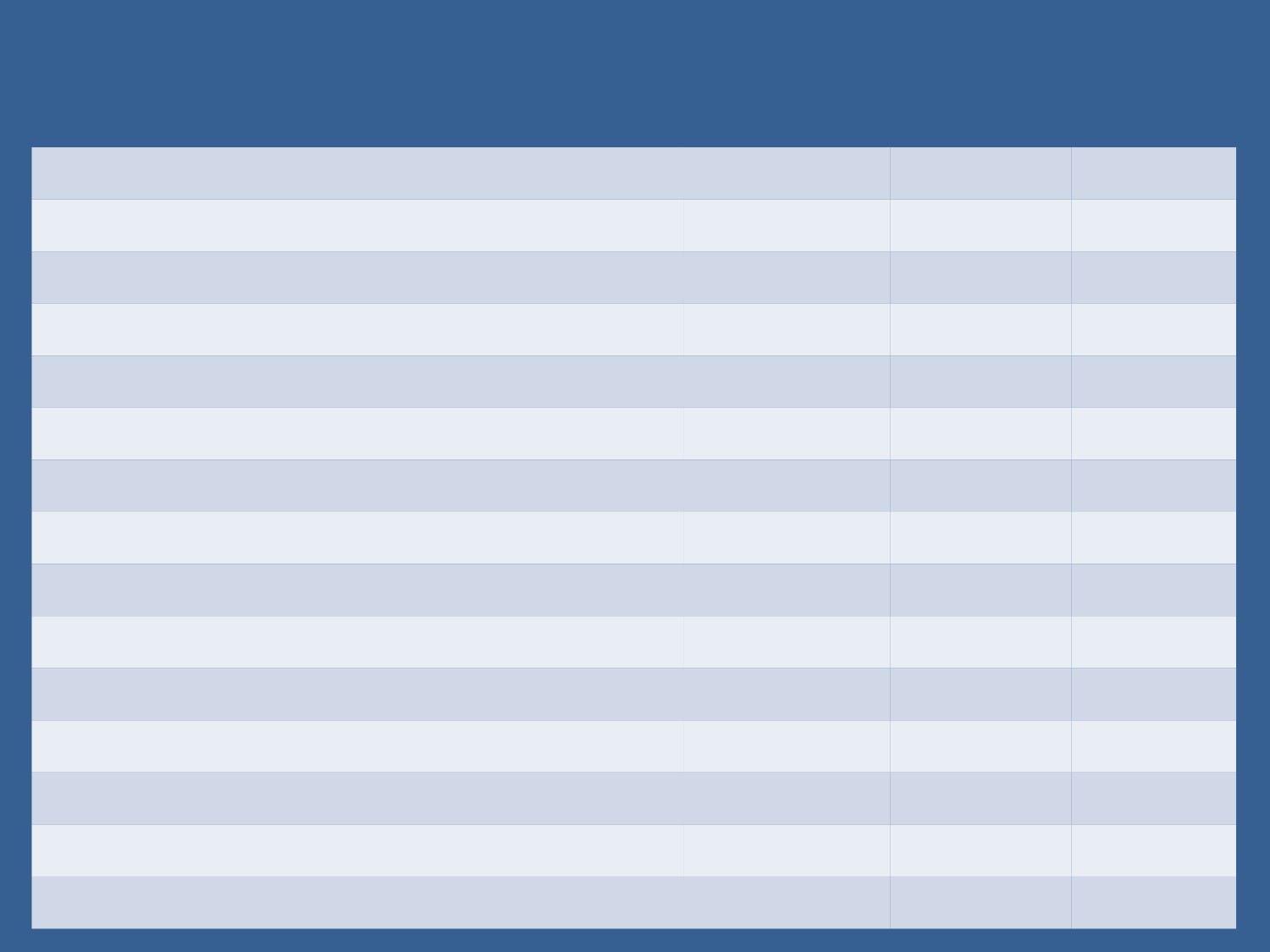
Labor Market & Career Information (LMCI)   
 Texas Workforce Commission

richard.froeschle@twc.state.tx.us   
 (512) 936-3105

The Interworkings of the Global Economy

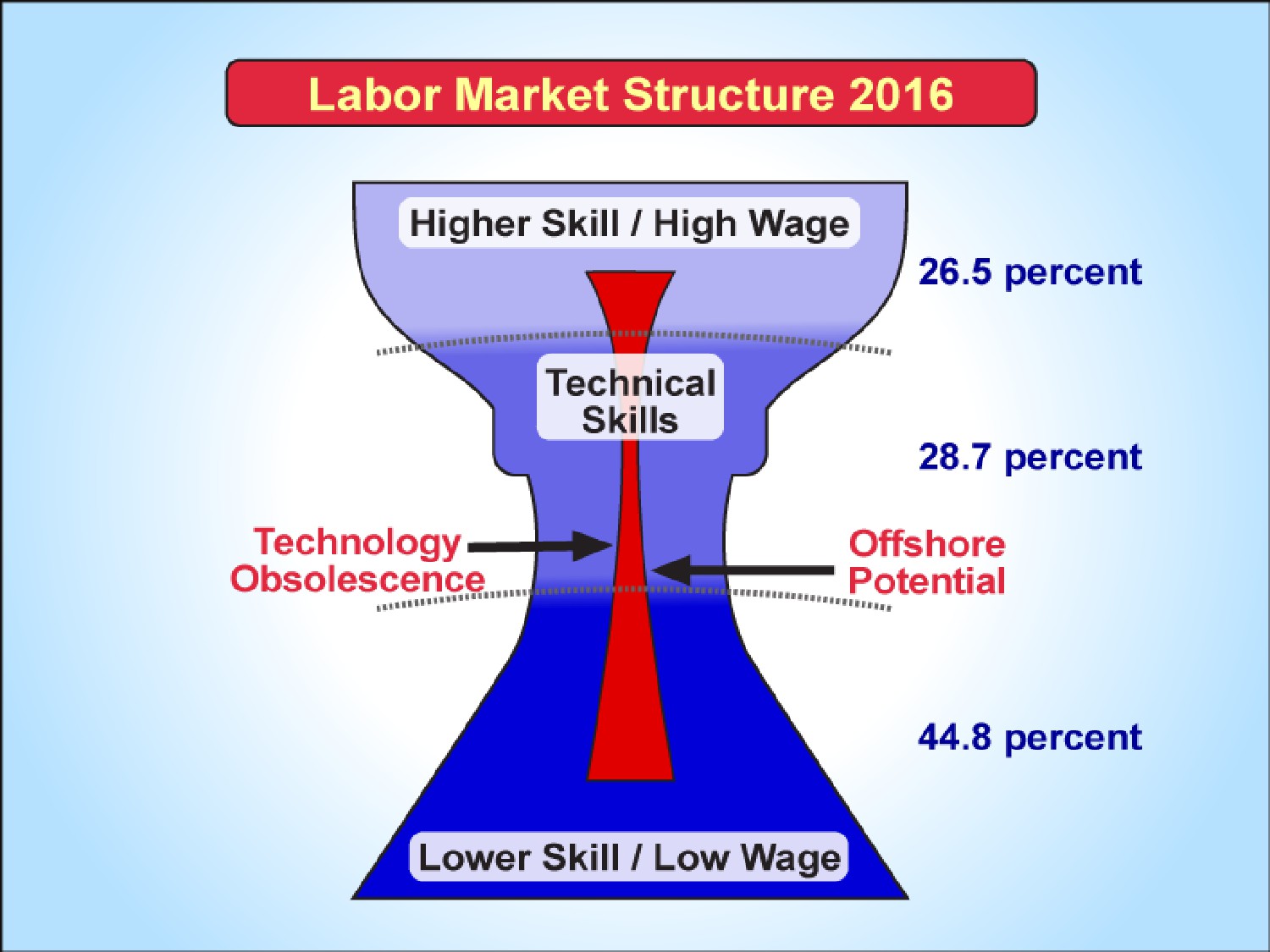


Texas Industry Growth December 2010-11 YOY



|  |  |  |  |
| --- | --- | --- | --- |
| Industry | Dec 2011 | ABS CHG | PER CHG |
| Total Nonagricultural | 10,649,200 | 204,500 | 2.0 |
| Total Nongovernment (aka private) | 8,843,900 | 260,000 | 3.0 |
| Goods-Producing | 1,686,100 | 59,600 | 3.7% |
| Service-Providing | 8,963,100 | 144,900 | 1.6% |
| Professional and Business Services | 1,343,700 | 53,100 | 4.1 |
| Trade, Transportation, and Utilities | 2,108,000 | 45,800 | 2.2 |
| Leisure and Hospitality | 1,060,200 | 41,200 | 4.0 |
| Mining and Logging | 257,900 | 40,700 | 18.7 |
| Education and Health Services | 1,443,500 | 36,900 | 2.6 |
| Manufacturing | 837,400 | 25,200 | 3.1 |
| Financial Activities | 638,800 | 18,000 | 2.9 |
| Other Services | 378,700 | 13,300 | 3.6 |
| Construction | 590,800 | -6,300 | -1.1 |
| Information | 184,900 | -7,900 | -4.1 |
| Government | 1,805,300 | -55,500 | -3.0 |

|  |  |  |
| --- | --- | --- |
| Estimated Occupational Demand for 630 Increase in  Support Activities for Mining | | |
| SOC Occupational Title | Staffing  Pattern | Required  Workers |
| Total, All Workers | 100.00% | 630 |
| Roustabouts, Oil and Gas | 16.4% | 104 |
| Service Unit Operators, Oil, Gas & Mining | 13.0% | 82 |
| Derrick Operators, Oil and Gas | 6.2% | 39 |
| Rotary Drill Operators, Oil and Gas | 5.5% | 35 |
| Supervisors, Construction & Extraction Workers | 5.1% | 32 |
| Truck Drivers, Heavy and Tractor-Trailer | 3.8% | 24 |
| Helpers--Extraction Workers | 3.7% | 23 |
| General and Operations Managers | 3.5% | 22 |
| Construction Equipt Operators & Engineers | 2.0% | 13 |
| Construction Laborers | 1.7% | 11 |
| Wellhead Pumpers | 1.7% | 11 |
| Petroleum Engineers | 1.5% | 10 |
| Geological and Petroleum Technicians | 1.5% | 10 |



|  |  |  |  |
| --- | --- | --- | --- |
| Growth Occupations (most jobs) for Texas for 2008-2018 | | | |
| Type of Job | Annual  Openings | Decade  Growth Rate | Required  education/training |
| 1. Fast Food Prep Worker | 7,845 | 42% | Short-term On Job Training |
| 2. Elementary School Teacher | 6,110 | 39% | Bachelor’s degree |
| 3. Retail Salesperson | 5,430 | 15% | Moderate On Job Training |
| 4. Registered Nurse | 5,365 | 32% | ssociate’s degree |
| 5. Home Health Aide | 5,105 | 55% | Short-term On Job Training |
| 6. Customer Service Rep | 5,005 | 23% | Moderate On Job Training |
| 7. Waitress/Waiter | 4,530 | 24% | Short-term On Job Training |
| 8. Personal & Home Care Aide | 4,400 | 47% | Short-term On Job Training |
| 9. Office Clerk | 3,960 | 17% | Short-term On Job Training |
| 10. Cashier | 3,690 | 13% | Short-term On Job Training |
| 11. Secondary School Teacher | 3,105 | 31% | Bachelor’s degree |
| 12. Construction Worker | 3,090 | 22% | Moderate On Job Training |

Fastest Growing Texas Occupations 2018 - Projected



|  |  |  |
| --- | --- | --- |
| Growth Occupations | Education preferred | 2009  Salary |
| 1. Biomedical Engineers | Bachelor's degree | $66,729 |
| 2. Home Health Aides | Short-term OJT | $18,849 |
| 3. Network Systems & Data  Communications Analysts | Bachelor's degree | $76,420 |
| 4. Petroleum Engineers | Bachelor's degree | $126,241 |
| 5. Athletic Trainers | Bachelor's degree | $45,873 |
| 6. Personal & Home Care Aides | Short-term OJT | $16,211 |
| 7. Electrical & Electronics Repairers,  Powerhouse, Substation & Relay | Postsecondary  vocational training | $55,250 |
| 8. Financial Examiners | Bachelor's degree | $76,359 |
| 9. Medical Scientists | Doctoral degree | $64,386 |
| 10. Special Education Teachers | Bachelor's degree | $49,856 |

Expected Growth Occupations in STEM in Texas 2008-2018



Type of Job

1. Registered Nurse

2. Accountant/Auditor

3. Computer Systems Analyst

4. Computer Support Specialist

5. Software Engineer

6. Computer Programmer

7. Financial Manager

8. Computer Network Admin

9. Civil Engineer

10. Pharmacy Technician

11. Medical Manager

12. Financial Analyst

13. Pharmacist

Minimum Required

ssociate’s degree   
Bachelor’s degree   
Bachelor’s degree

ssociate’s degree   
Bachelor’s degree   
Bachelor’s degree   
Bachelor’s degree   
Bachelor’s degree   
Bachelor’s degree   
Moderate training

Master’s degree   
Bachelor’s degree

Master’s degree

Pay Range

$48,000 - $75,000   
 $40,000 - $82,000   
 $50,000 - $97,000   
 $31,000 - $62,000   
$62,000 - $113,000

$45,000 - $97,000   
$63,000 - $138,000

$44,000 - $82,000   
$53,000 - $107,000

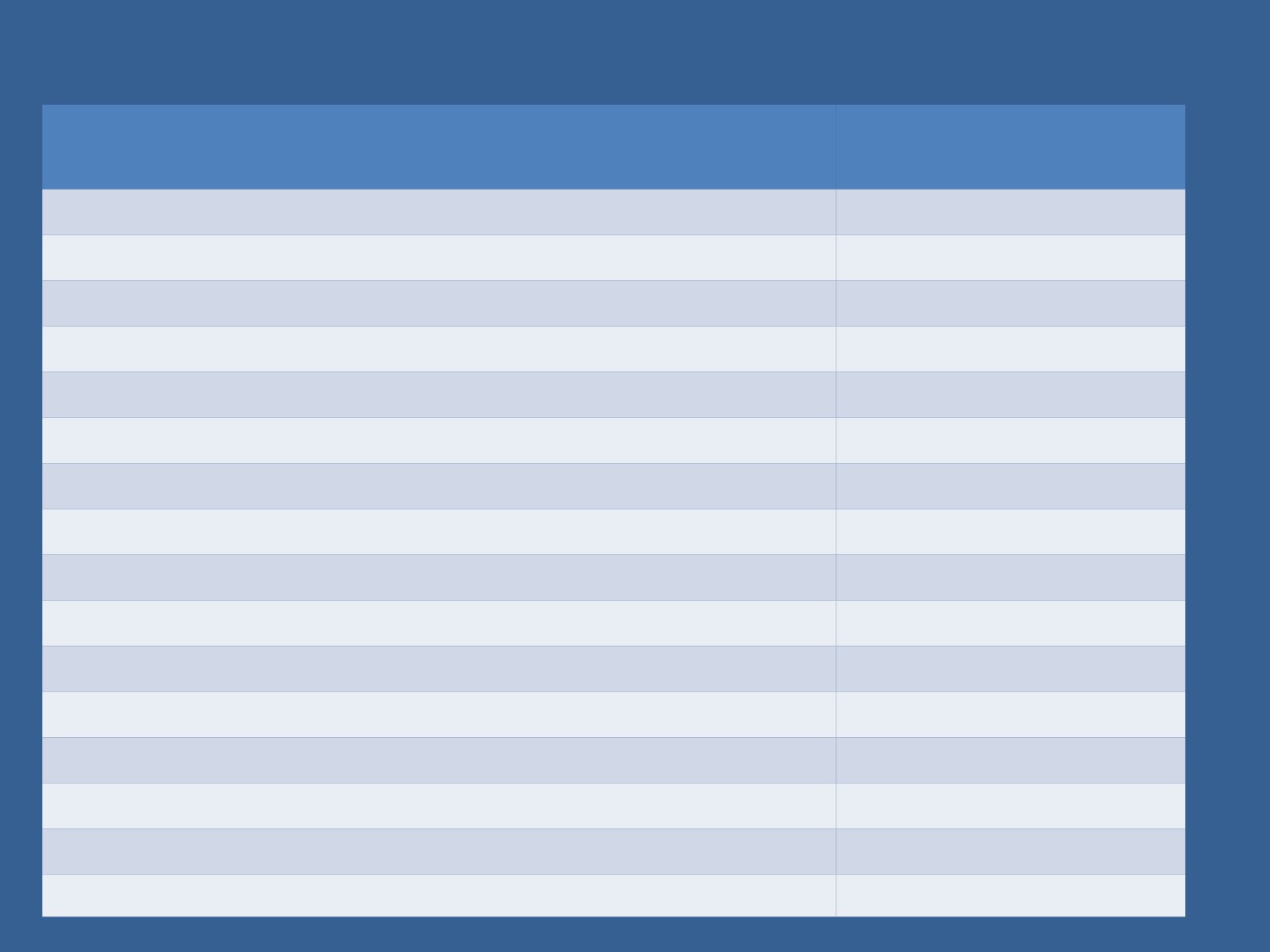
$23,000 - $34,000   
$53,000 - $109,000

$47,000 - $96,000   
$90,000 - $122,000

|  |  |  |
| --- | --- | --- |
| Texas Online Job Postings Last 90 Days January 2012 | | |
| Registered Nurses | 26,820 | ssociate’s/Bachelor’s |
| Truck Drivers, Heavy & Tractor-Trailer | 14,810 | Moderate term OJT |
| Retail Salespersons | 11,784 | Short term OJT |
| Computer Systems Analysts | 11,731 | Bachelor’s degree |
| Supervisors, Retail Sales Workers | 11,148 | Related Work Experience |
| Customer Service Representatives | 10,307 | Moderate term OJT |
| Physical Therapists | 9,445 | Master’s degree |
| Web Developers | 9,351 | ssociate’s degree |
| Computer Support Specialists | 9,064 | ssociate’s degree |
| Accountants | 7,862 | Bachelor’s degree |
| Exec. Secretaries/Admin Assts. | 7,558 | Related Work Experience |
| Network Systems Administrators | 7,244 | Bachelor’s degree |
| Non-technical Sales Reps, Wh & Man | 7,098 | Related Work Experience |
| Occupational Therapists | 6,468 | Master’s degree |
| Supervisors, Food Prep Workers | 6,167 | Related Work Experience |

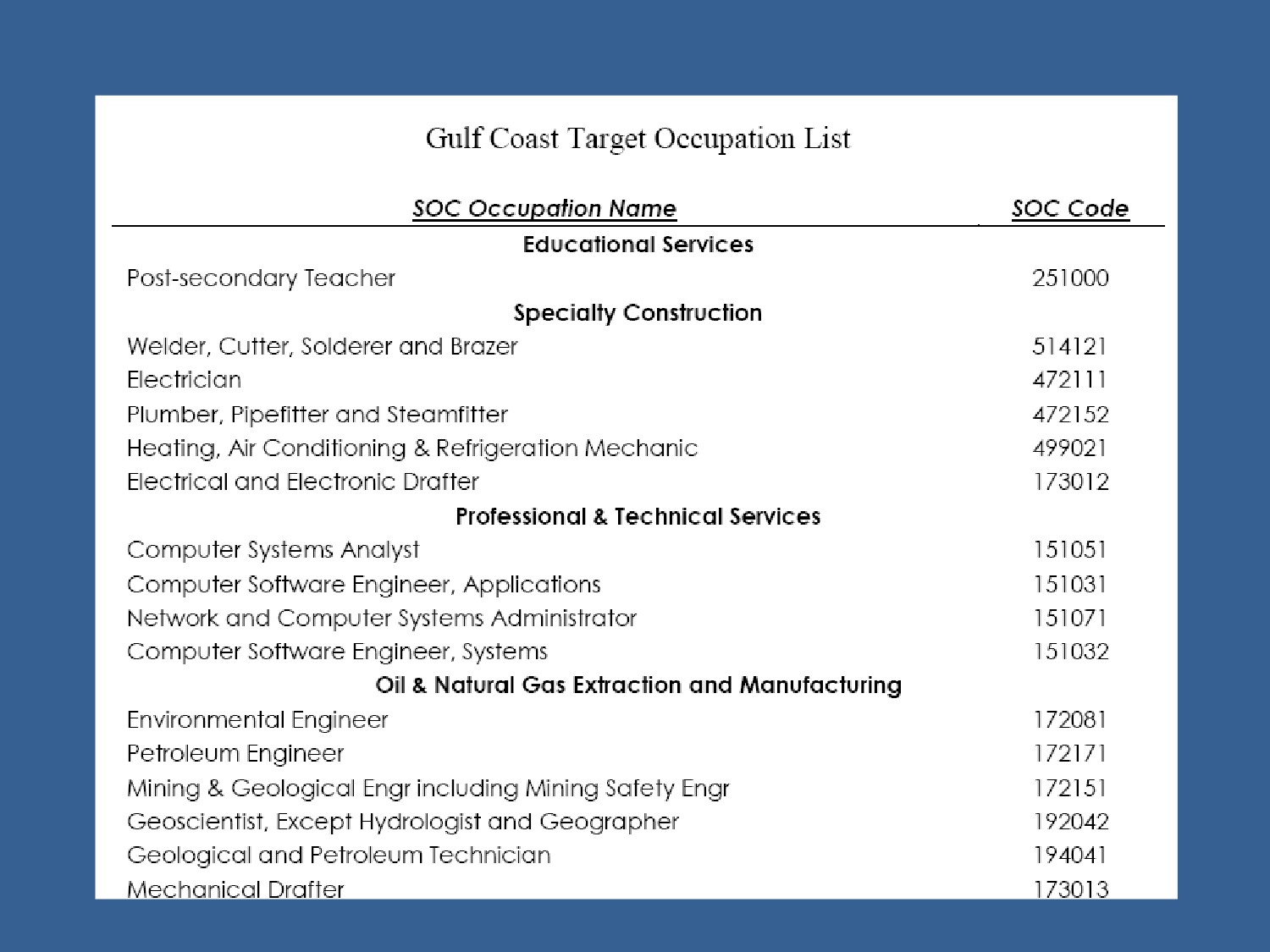
|  |  |
| --- | --- |
| Houston MSA Online Job Postings Last 90 Days January 2012 | |
| Registered Nurses | 5,040 |
| Computer Systems Analysts | 4,068 |
| Accountants | 3,155 |
| Industrial Engineers | 3,052 |
| Retail Salespersons | 3,010 |
| Supervisors/Managers of Retail Sales Workers | 2,906 |
| Truck Drivers, Heavy and Tractor-Trailer | 2,517 |
| Computer Support Specialists | 2,255 |
| Executive Secretaries & Admin Assistants | 2,244 |
| Customer Service Representatives | 2,115 |
| Web Developers | 2,099 |
| Non-technical Sales Reps, Wh & Man | 2,040 |
| Management Analysts | 1,806 |
| Mechanical Engineers | 1,788 |
| Sales Managers | 1,755 |
| Supervisors, Office & Admin Support Workers | 1,637 |

Achieve Texas Clusters- Highest Earnings



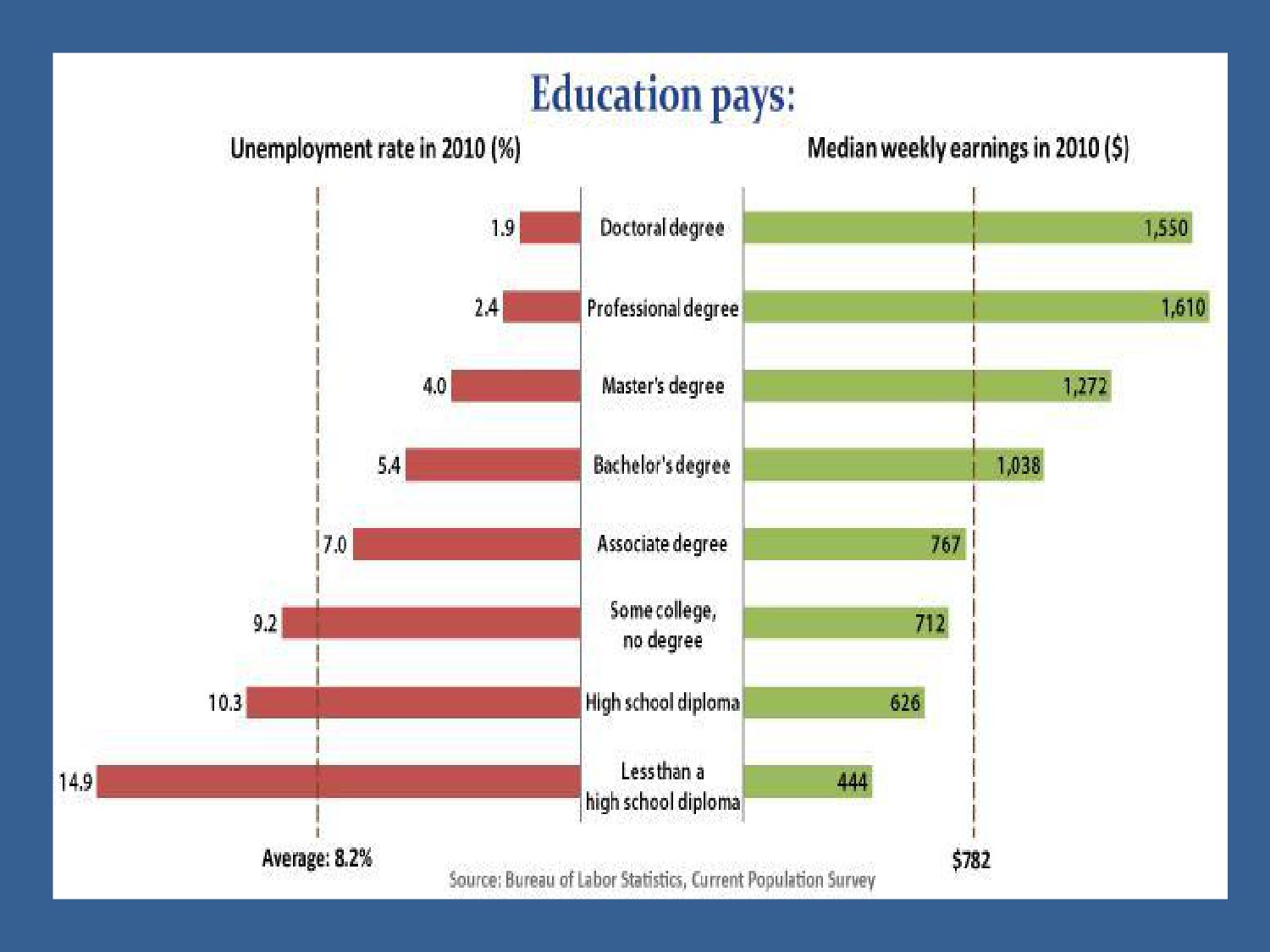
|  |  |  |  |
| --- | --- | --- | --- |
| SOC Title | AAO TOT | HWOL  2011Q4 | Wage |
| Scientific Research & Engineering | 9,545 | 40,835 | $78,549 |
| Information Technology | 11,560 | 116,830 | $69,167 |
| Government & Public Administration | 9,040 | 17,424 | $51,186 |
| Health Science | 41,665 | 152,331 | $46,887 |
| Finance & Insurance | 18,795 | 56,003 | $45,445 |
| Education & Training | 43,150 | 20,486 | $45,285 |
| Business Administration | 59,175 | 99,572 | $40,768 |
| Arts, AV Technology & Communications | 8,405 | 13,019 | $37,463 |
| Architecture & Construction | 28,915 | 20,614 | $37,342 |
| Agriculture and Natural Resources | 16,965 | 5,315 | $32,779 |
| Transportation, Distribution & Logistics | 29,350 | 59,549 | $32,503 |
| Marketing, Sales & Service | 64,280 | 127,546 | $32,264 |
| Manufacturing | 26,135 | 46,883 | $30,678 |
| Human Services | 18,345 | 7,685 | $25,756 |
| Law & Public Safety | 15,610 | 10,138 | $24,212 |
| Hospitality & Tourism | 65,030 | 36,620 | $22,704 |

Gulf Coast Targeted Occupations



Math = Money

The more math you take the more money you can make.



Reality is Relative



2011 Charles Schwab Teens & Money Survey

Poll of Americans ages 13-18

U.S. teenagers were asked:

“How much money do you expect to   
 be making as a starting salary?

͙once you are established in a

career?”

Reality is Relative



2011 Charles Schwab Teens & Money Survey   
 Poll of Americans ages 13-18

American teens were asked how much money they expected to be earning in their careers.

Average answer:

$73,000 starting salary

$150,000 established salary

Boys answered: $79,700 & $162,300 a year   
Girls answered: $66,200 & $126,500 a year

Source: Charles Schwab and Boys & Girls Club of America survey conducted with Harris Interactive   
For real fun, check out: <http://www.lmci.state.tx.us/realitycheck/>

Welcome to Reality Check 2011!



|  |  |  |
| --- | --- | --- |
| Highest Earning College Programs 2010 Summary | | |
| Bachelor’s Degree Graduate Major (TX) | Grads | Earnings |
| Engineering | 4,554 | $51,131 |
| Health Professions & Related Clinical Sciences | 7,644 | $50,813 |
| Engineering Technologies/Technicians | 951 | $46,075 |
| Computer & Information Sciences | 1,356 | $44,408 |
| Business, Management & Marketing | 21,153 | $36,261 |
| Mathematics and Statistics | 914 | $33,296 |
| Multi/Interdisciplinary Studies | 10,082 | $31,888 |
| Physical Sciences | 1,103 | $30,828 |
| Liberal Arts & Sciences/Humanities | 2,359 | $30,074 |
| Teacher Education & Development /Special Ed | 1,505 | $29,594 |
| Agriculture & Agriculture Operations | 1,804 | $28,195 |
| Unknown or Undeclared | 2,247 | $27,812 |
| Public Administration & Social Service | 1,174 | $27,456 |
| Security & Protective Services | 2,783 | $27,039 |
| Social Sciences | 6,227 | $26,795 |

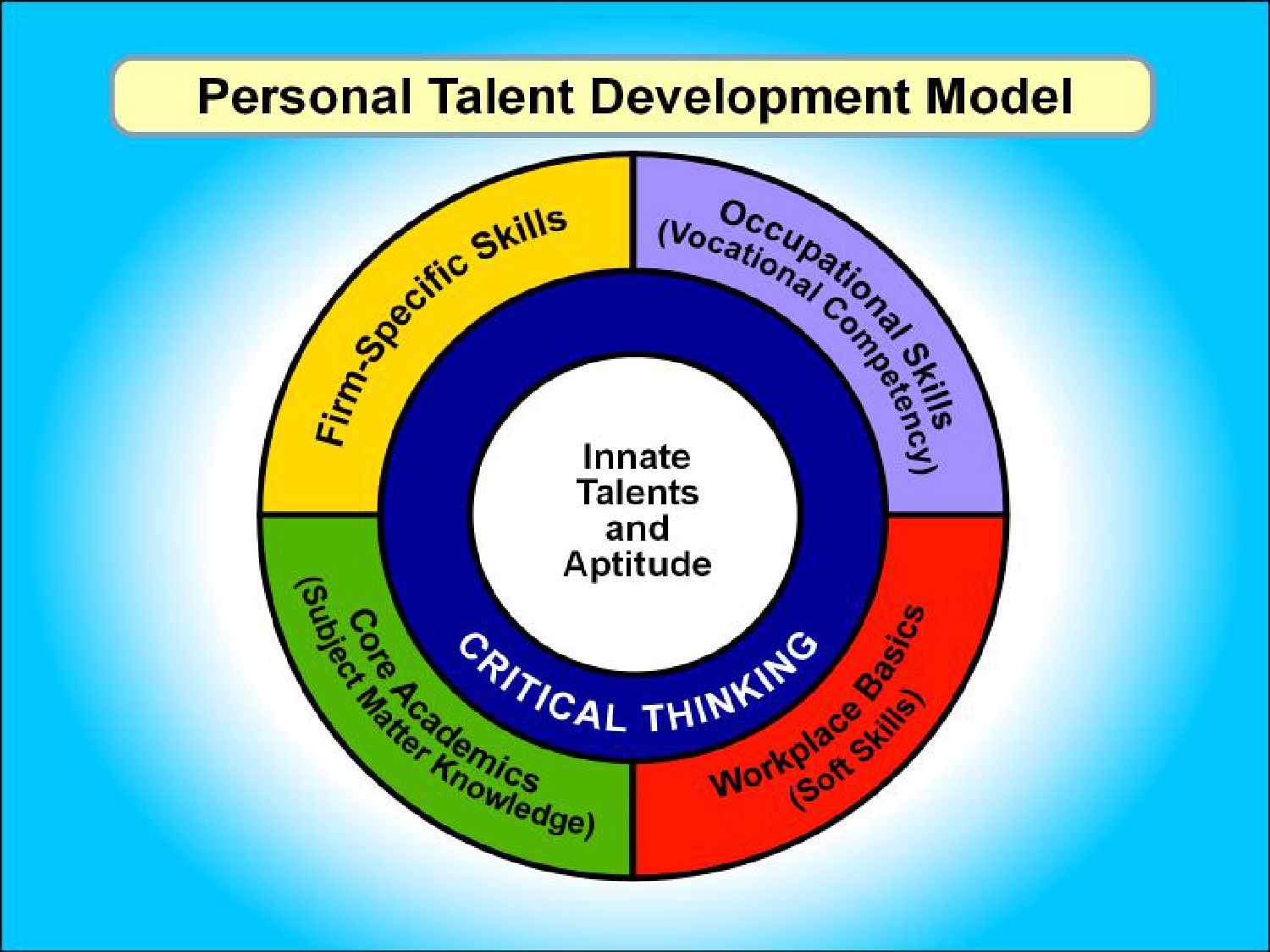
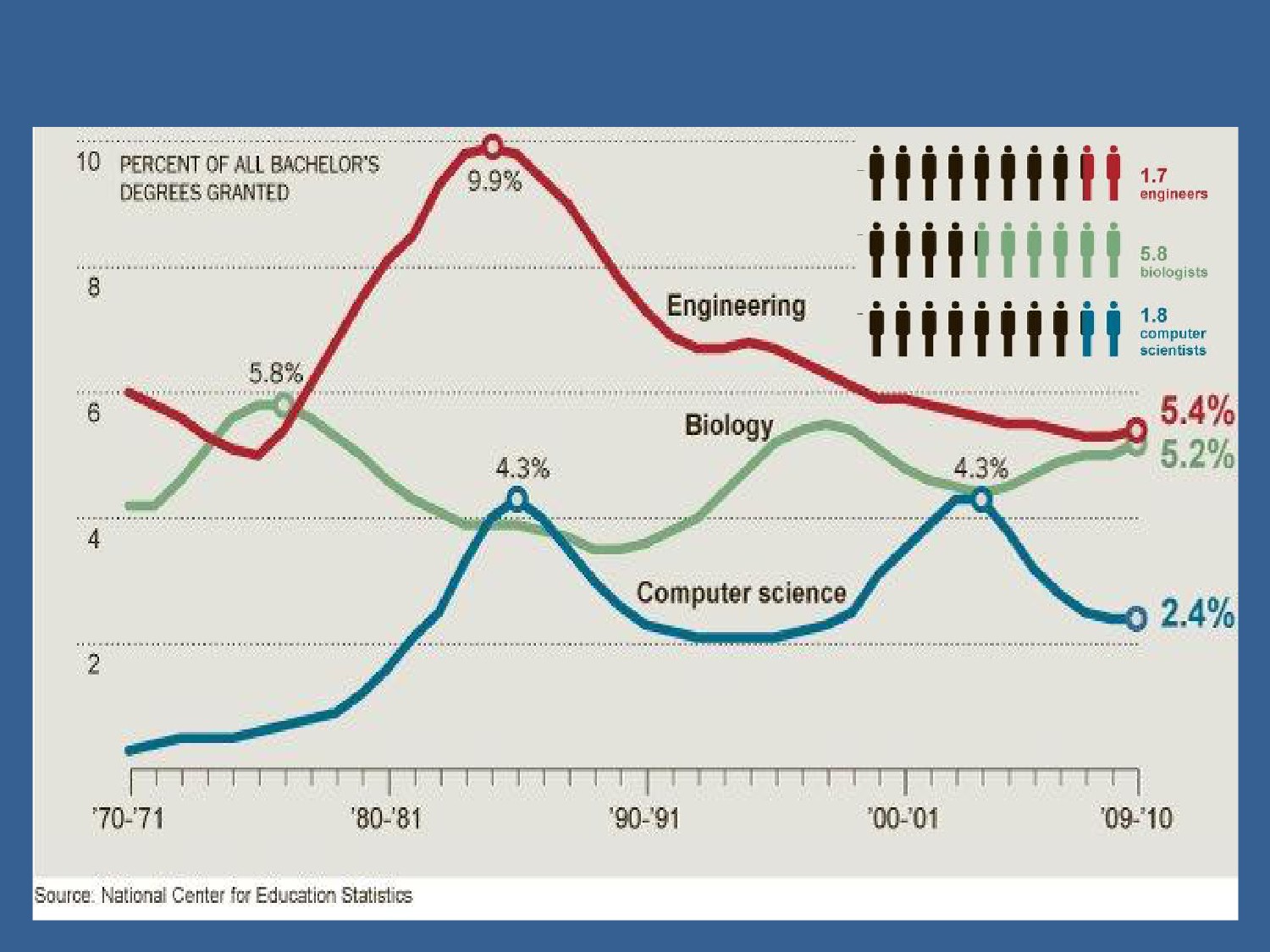
|  |  |  |
| --- | --- | --- |
| Highest Earning College Programs 2010 Detail View | | |
| Bachelor’s Degree Graduate Major (TX) | Grads | Earnings |
| Petroleum Engineering | 271 | $84,961 |
| Quality Control/Safety Technology | 30 | $61,113 |
| Chemical Engineering | 405 | $60,791 |
| Ocean Engineering | 71 | $59,411 |
| Registered Nursing, Nursing Administration | 4,745 | $59,359 |
| Electrical & Electronic Engineering | 111 | $55,332 |
| Mechanical Engineering | 1,224 | $53,307 |
| Construction Engineering | 54 | $50,594 |
| Health Diagnostic & Treatment Professions | 375 | $49,202 |
| Engineering Science | 29 | $48,601 |
| Computer Systems Networking/Telecomm | 26 | $48,411 |
| Computer Engineering, General | 189 | $47,815 |
| Engineering, General | 41 | $47,751 |
| Computer Systems Analysis | 114 | $47,747 |
| Information Technology Admin & Mgmt | 64 | $47,524 |

|  |  |  |
| --- | --- | --- |
| Lowest Earning College Programs 2010 Detail View | | |
| Bachelor’s Degree Graduate Major (TX) | Grads | Earnings |
| Pastoral Counseling & Specialized Ministries | 60 | $15,205 |
| Germanic Languages & Literature | 46 | $17,444 |
| Film/Video and Photographic Arts | 142 | $17,619 |
| Dramatic/Theatre Arts & Stagecraft | 529 | $18,304 |
| Classical Languages, Literatures & Linguistics | 35 | $18,342 |
| English Composition | 44 | $19,903 |
| Religious Education | 56 | $20,122 |
| Ecology, Evolution and Population Biology | 87 | $20,156 |
| Anthropology | 460 | $20,310 |
| Radio, Television & Digital Communication | 983 | $20,413 |
| Health/Medical Preparatory Programs | 93 | $20,547 |
| Parks & Recreation Facilities Management | 139 | $20,558 |
| Bible/Biblical Studies | 55 | $20,860 |
| Zoology/Animal Biology | 102 | $21,372 |
| Fine and Studio Art | 1,347 | $21,464 |

|  |  |  |
| --- | --- | --- |
| Highest Earning ssociate’s Degree Programs 2010 | | |
| ssociate’s Degree Graduate Major (TX) | Grads | Earnings |
| Fire Protection | 157 | $68,275 |
| Nuclear Radiologic Technology | 33 | $63,908 |
| Electrical & Power Transmission Installers | 41 | $55,835 |
| Registered Nursing, Nursing Administration | 5,203 | $53,648 |
| Mining and Petroleum Technology | 24 | $50,241 |
| Physical Science Technology | 457 | $47,881 |
| Electromechanical /Instrumentation Technology | 397 | $46,151 |
| Quality Control & Safety Technology | 133 | $44,685 |
| Chemistry | 56 | $44,599 |
| Industrial Production Technology | 97 | $44,138 |
| Construction Engineering Technology | 45 | $41,789 |
| Mechanical Engineering Related Technology | 29 | $41,622 |
| Precision Metal Working | 138 | $39,817 |
| Electrical/Electronics Maintenance Technology | 47 | $37,500 |
| Dental Support Services & Allied Professions | 352 | $37,371 |

|  |  |  |
| --- | --- | --- |
| Structural Mismatch: 2010 Graduates | Grads | Earnings |
| Multi-/Interdisciplinary Studies, Other | 9,536 | $32,132 |
| Business Administration, Mgmt & Operations | 6,056 | $40,473 |
| Psychology, General | 5,169 | $22,613 |
| Registered Nursing, Nursing Administration | 4,745 | $59,359 |
| Biology, General | 4,517 | $21,737 |
| Health and Physical Education/Fitness | 3,457 | $23,454 |
| Finance & Financial Mgmt Services | 3,269 | $37,160 |
| Accounting & Related Services | 3,083 | $33,583 |
| Marketing | 2,884 | $31,693 |
| Criminal Justice and Corrections | 2,783 | $27,039 |
| English Language and Literature, General | 2,453 | $23,124 |
| Liberal Arts, General Studies & Humanities | 2,359 | $30,074 |
| History, General | 2,245 | $24,016 |
| Political Science & Government | 2,208 | $25,037 |
| Public Relations & Advertising | 1,772 | $27,579 |

Trends in U.S. Bachelor’s Degrees warded



Detailed Work   
Activities (DWA)

Show Workplace Basics BYN

Regional employers say they want͙



1. Good communications skills: Can you͙..

 Explain what you’re doing (to co-worker or customer)?   
 Explain what you need (from a co-worker or customer)?   
 Ability to listen to instructions?

2. Critical thinking skills (if given a sequence of events, can you

determine what will probably happen next)

3. Technical knowledge (degrees needed for half of all job

openings)

4. Can-do attitude / pleasant attitude (workers who are

“engaged” in their work)

5. Can you work with people who are of a different age,

race, gender and education level than you?

[www.texasindustryprofiles.com/apps/swap](http://www.texasindustryprofiles.com/apps/swap/)

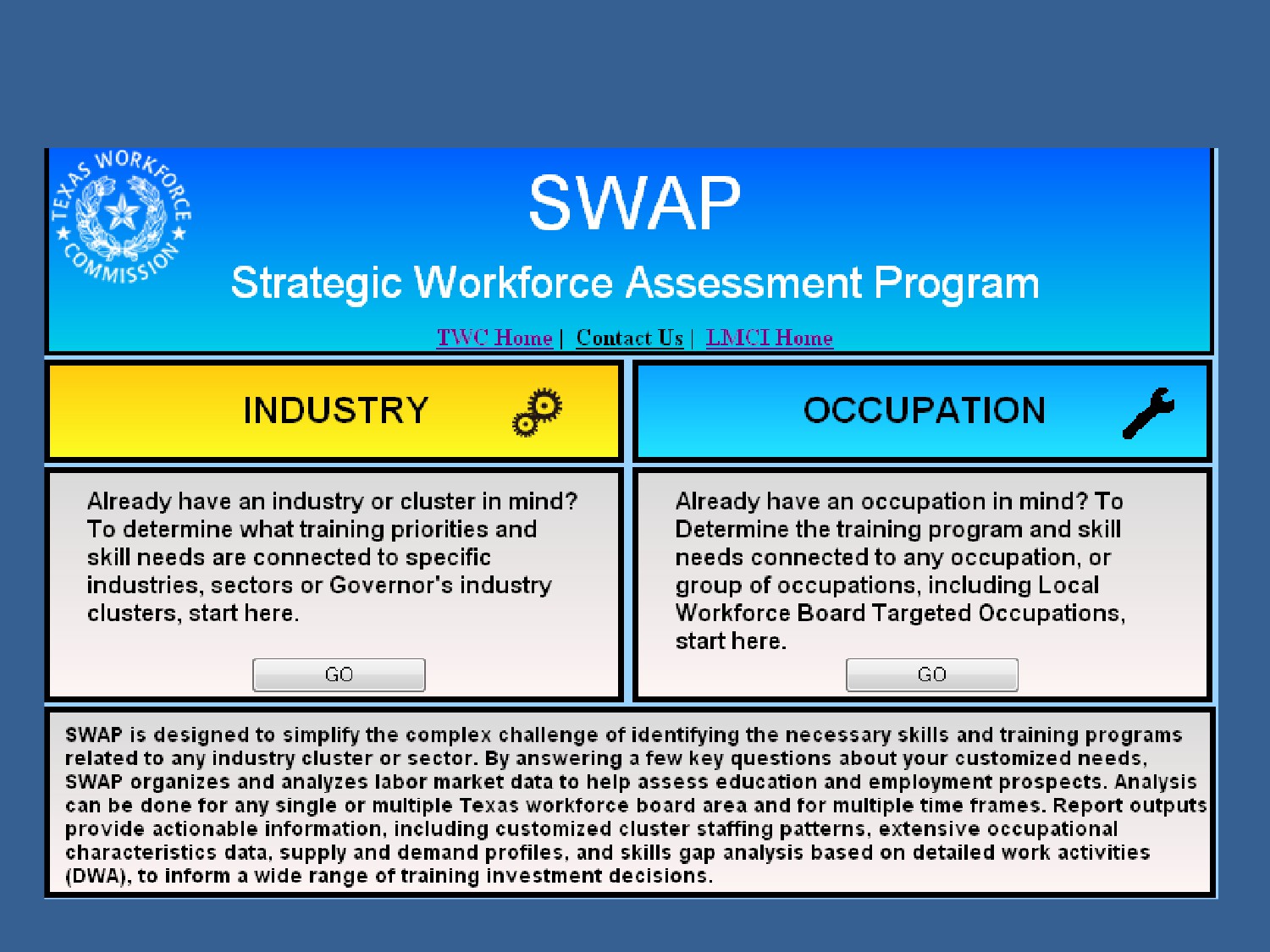
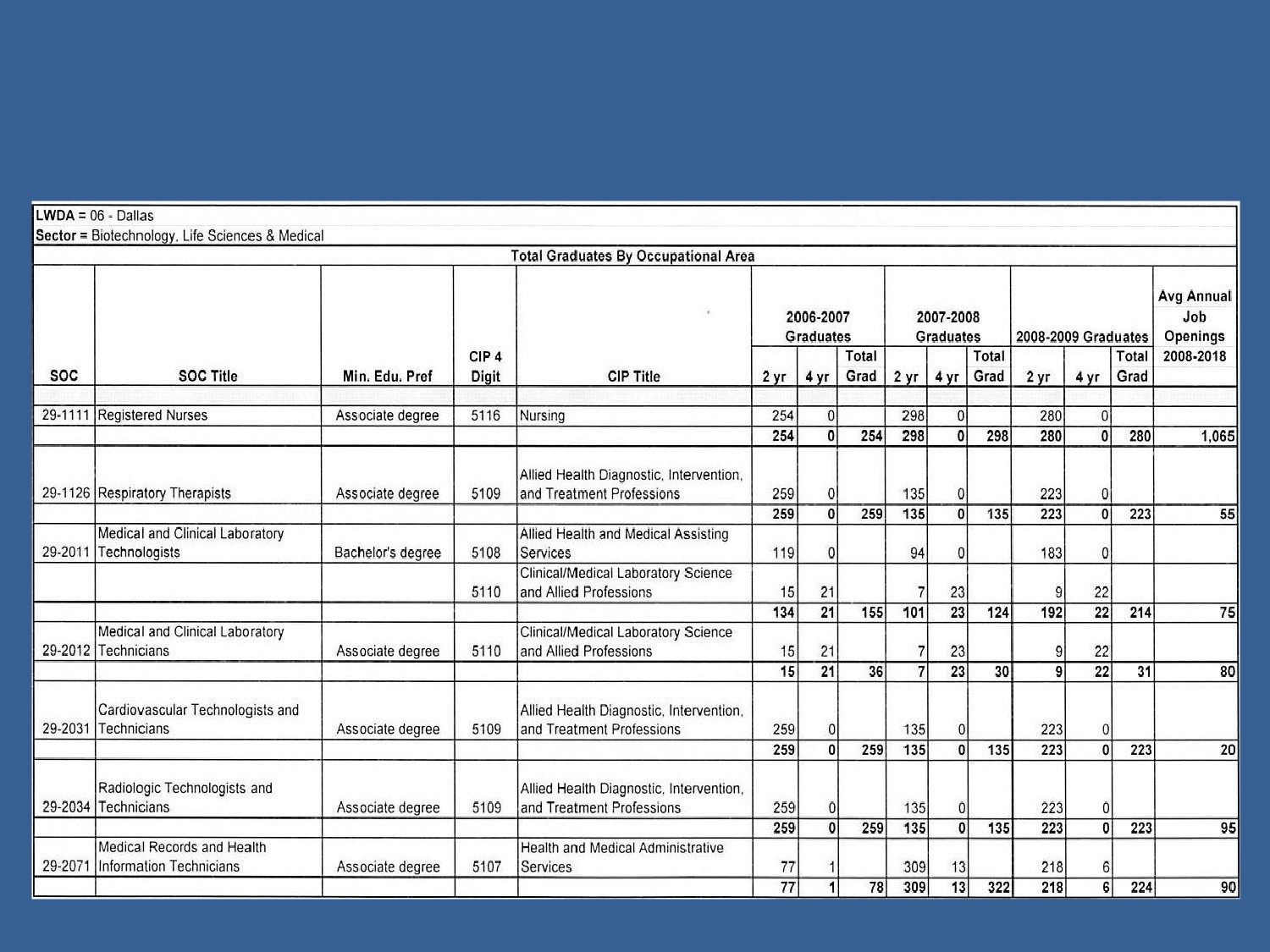


Table 2. Formal Higher Education



Supply and Demand Reports

Five Major Data Challenges for S/D Analysis



To what extent should higher education program   
investments be driven by market demand?

Should “market demand” be viewed as a

statewide or a regional concept? e.g. where do you

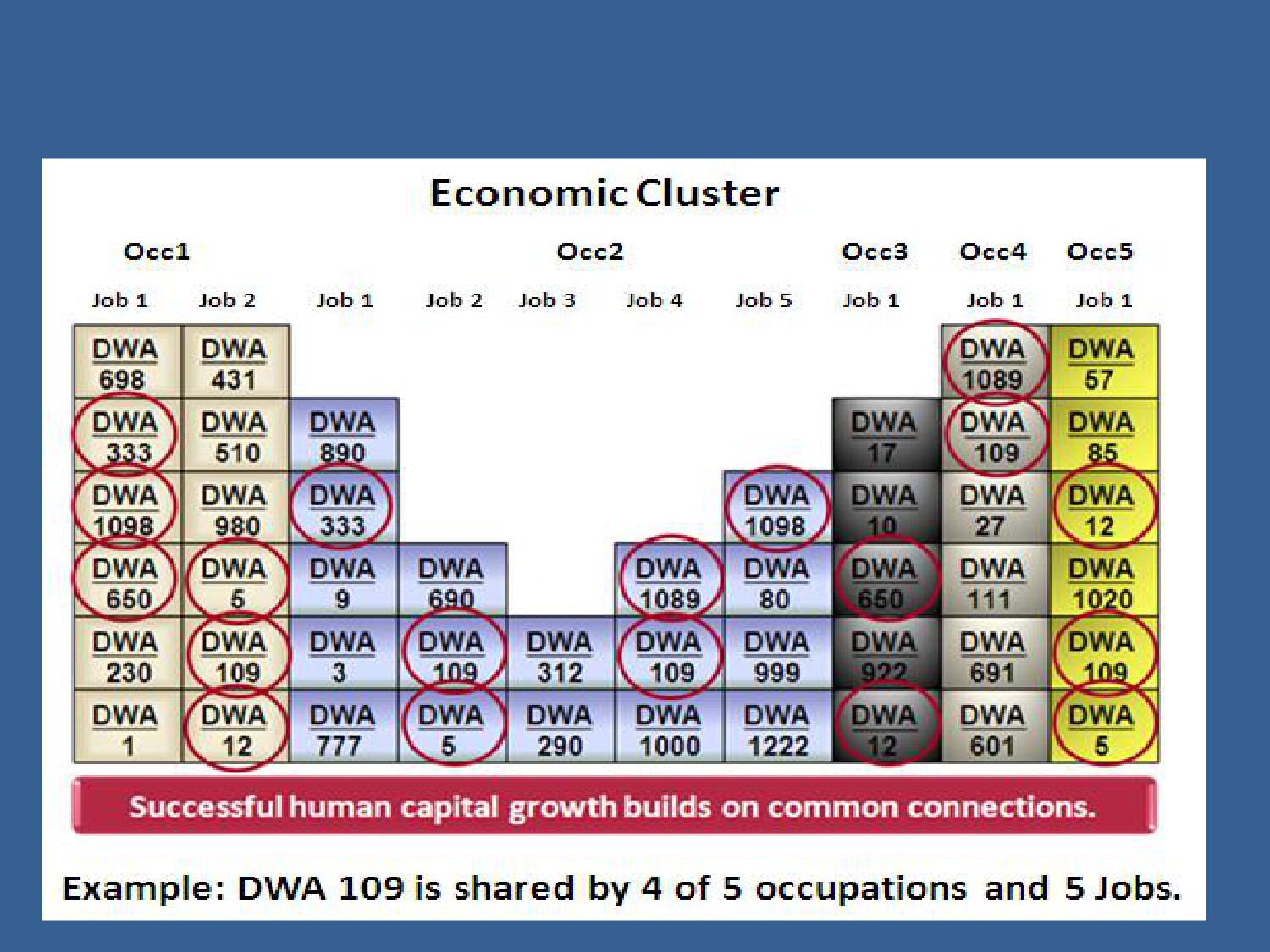
count TAMU and UT@Austin grads?

Which college majors prepare students for which   
occupations? The ‘Humanities’ Paradox

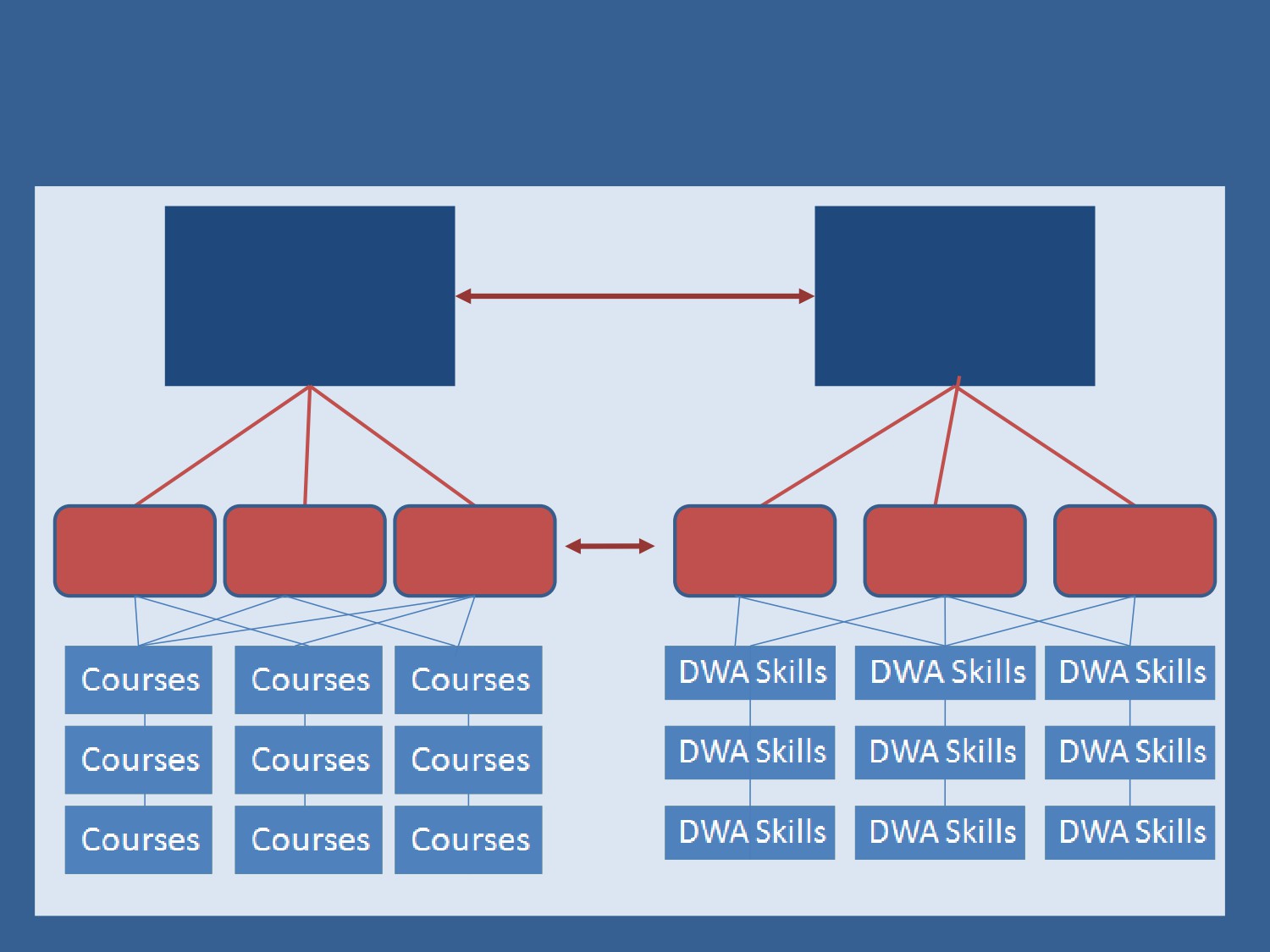
How many is enough? What is the target ratio of   
graduates to expected job openings?

SOC to CIP gives a different look than CIP to SOC

Detailed Work Activity Common Language for   
 Skill Transferability



Education Content & Industry Jobs Alignment



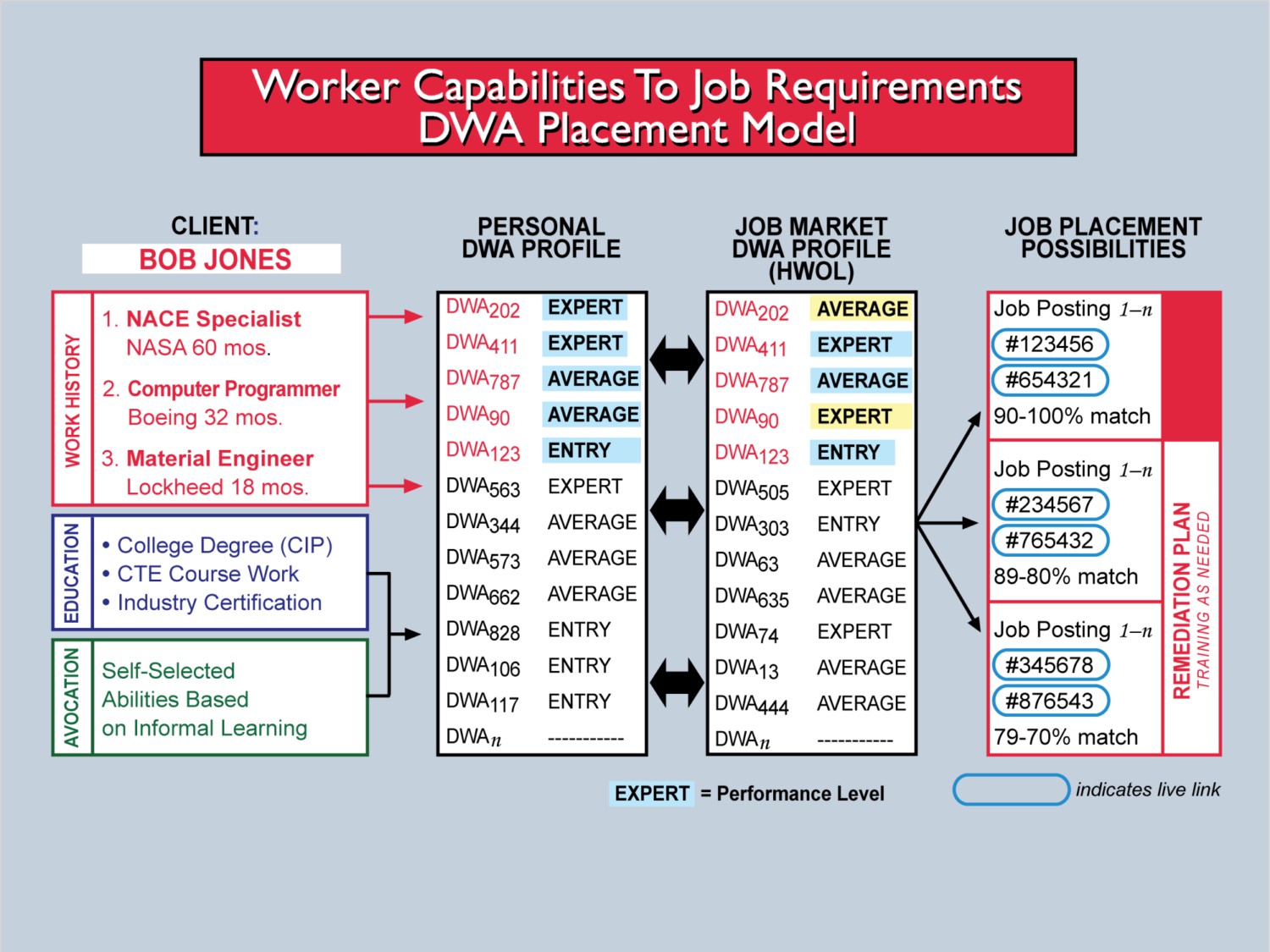
Component Description and Crosswalk

WECM/CIP

Programs Programs Programs

O\*NET SOC   
Occupations

Job Titles Job Titles Job Titles



Assessing Skills Gaps through DWAs:



Matching Worker Capabilities with Employer Hiring Requirements

I want someone who can…

1. Operate power generation

equipment

2. Read technical drawings

3. Collect samples for testing

4. Control operation of

compressors

5. Adjust production

equipment/machinery setup

6. Analyze malfunctioning

electrical equipment

7. De-energize high tension

power lines for repairs

8. Erect power or

communication poles or   
towers

I can offer the ability to …

1. Operate power generation

equipment

2. Read technical drawings

3. Collect samples for testing

4. Control operation of

compressors

DWA-based Skill Acquisition

5. Adjust production

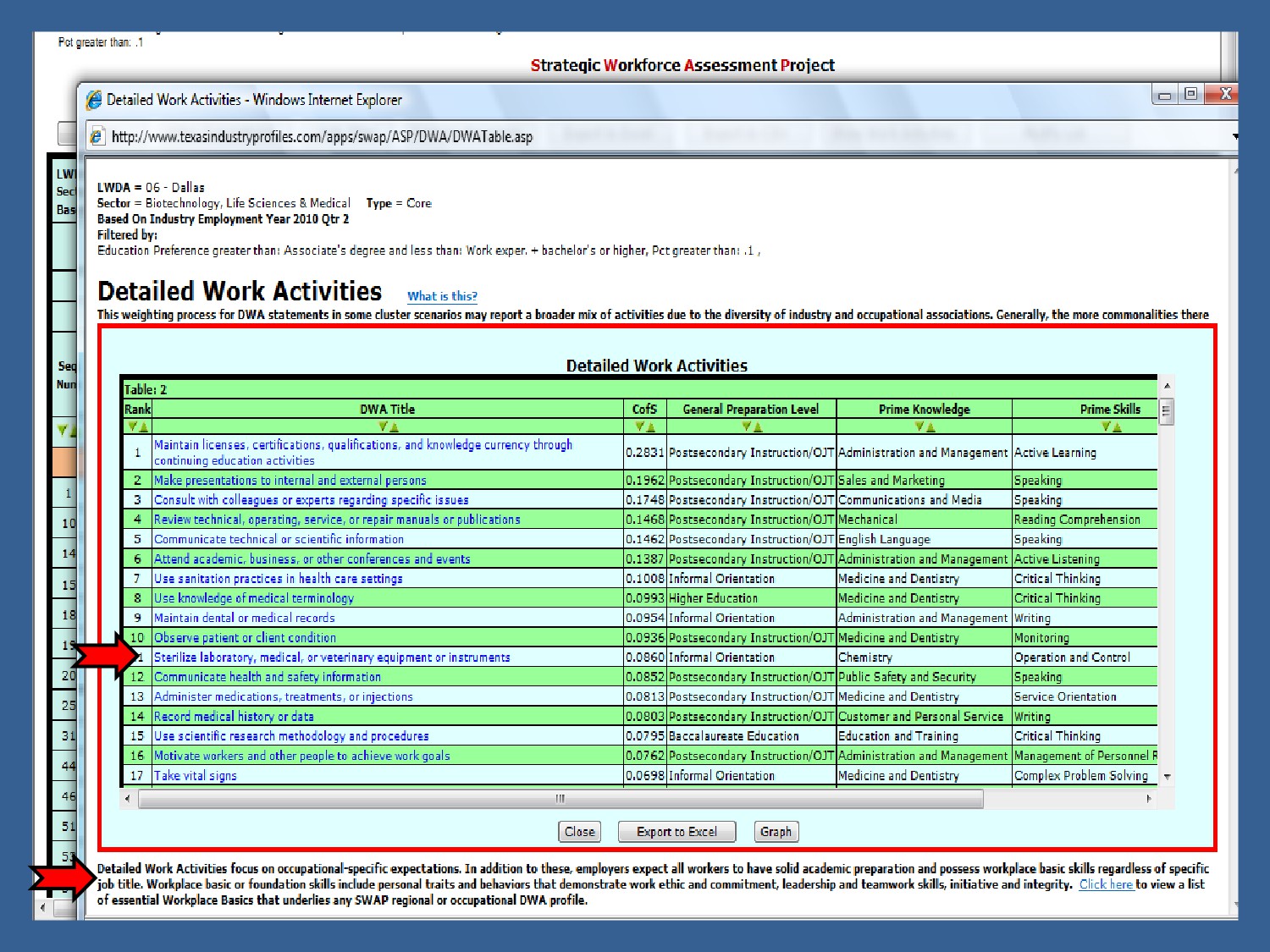
equipment/machinery setup

6. Analyze malfunctioning   
electrical equipment

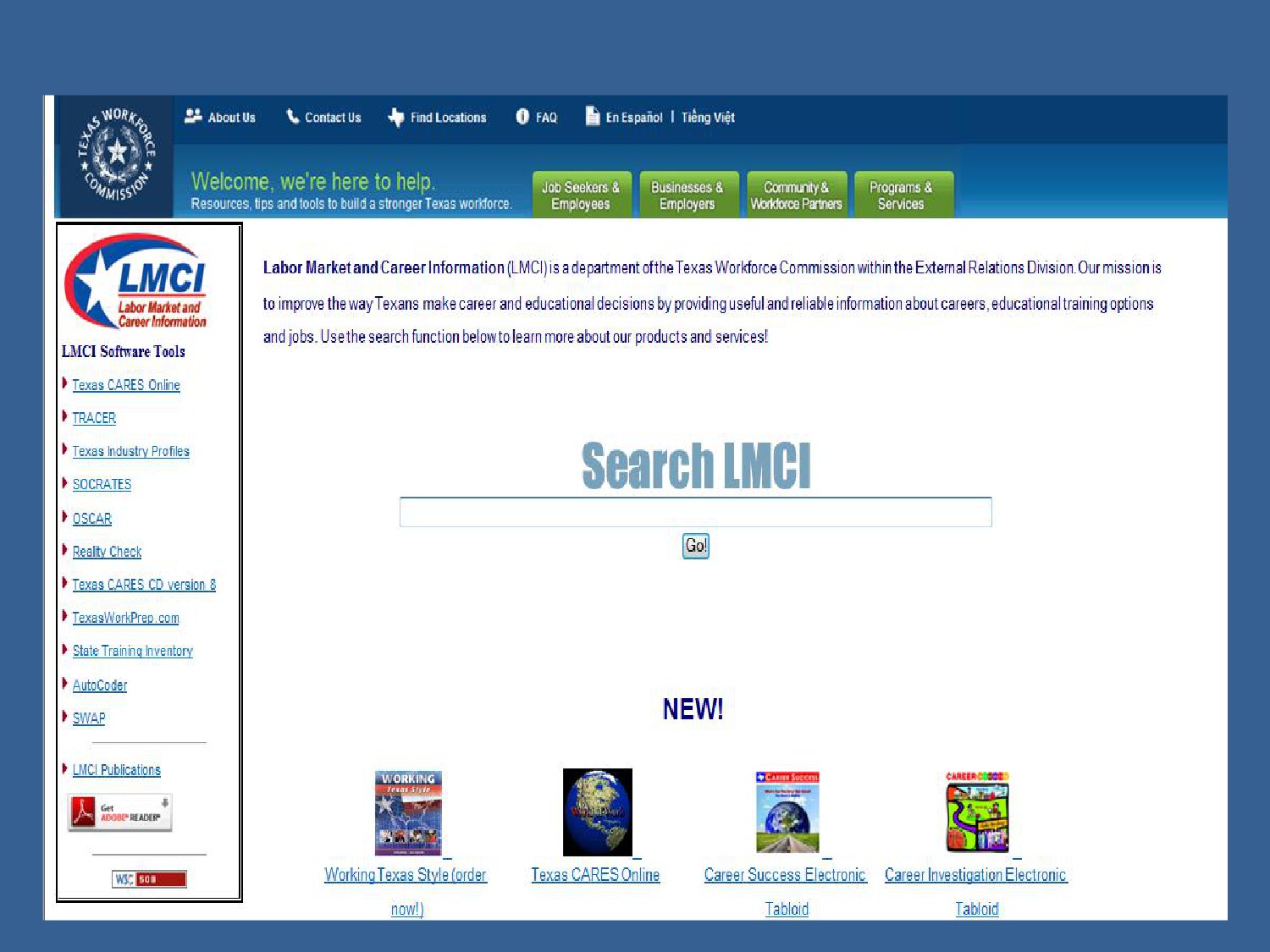
7. De-energize high tension

power lines for repairs

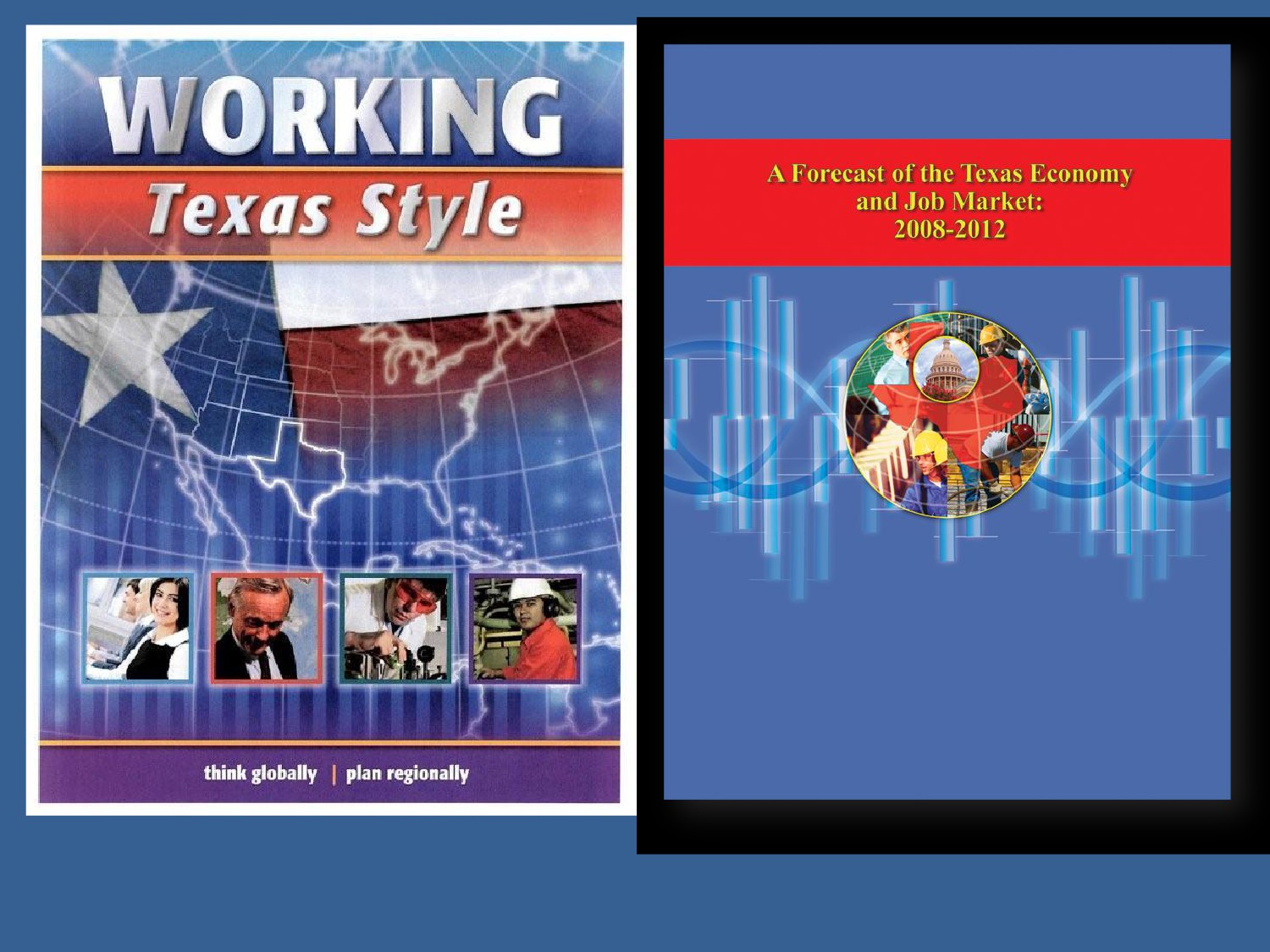
8. Erect power or communication   
poles or towers



LMCI Main Web Page



[www.lmci.state.tx.us](http://www.lmci.state.tx.us/)



[www.lmci.state.tx.us](http://www.lmci.state.tx.us/)



There is much more story to

tell, but this version is over

Thank you!

richard.froeschle@twc.state.tx.us