

# AGRICULTURE, FOOD, AND NATURAL RESOURCES

## INTERESTS & ABILITIES

- *Enjoys nature, science, or other outdoors*
- *Is organized and punctual*
- *Desires to protect and manage the world's resources*

The Agriculture, Food, and Natural Resources career cluster focuses on supporting life by ensuring that we are responsibly managing our food production and natural resources. These areas supply us and many other countries with a wide variety of food and nonfood products, such as fibers, natural resources, and nursery items. These fields contribute positively to our foreign trade balance, and they remain some of the nation's larger industries in terms of total employment. This cluster focuses on preparing you for careers in the planning, implementing, producing, managing, processing, and marketing of agricultural goods and services.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Landscape Managers</i>	2,323	757	1,024	\$10.99
<i>Environmental Compliance Inspectors</i>	1,916	503	736	\$17.01
<i>Environmental Engineers</i>	489	105	209	\$30.21
<i>Veterinarians</i>	557	151	262	\$31.73

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

**Career pathways under the Agriculture, Food, and Natural Resources cluster include:**

### HORTICULTURE

The field of Horticulture focuses on the industry and science of plant cultivation, including the process of preparing soil for the planting of seeds, tubers, or cuttings.

### AGRICULTURE & ENVIRONMENTAL SCIENCE & TECHNOLOGY

This pathway is focused on building a foundation of knowledge in the agrisciences industries and relies on scientific and technological developments to improve agriculture.

### AGRICULTURE & NATURAL RESOURCES

The fields of Agriculture & Natural Resources are dedicated to increasing the agricultural productivity of farming communities while preserving the surrounding ecosystems.

### AGRICULTURE POWER AND MACHINERY

Agriculture Power and Machinery is a pathway designed to provide basic skills for students to become employed in the industry of agricultural power mechanics or to continue their education in postsecondary institutions. Skills taught in this pathway relate to the selection, operation, service, maintenance, and repair of a variety of agricultural power units and agricultural machinery and equipment.

### FOOD PRODUCTS (MEATS)

Food Products (Meats) is an instructional program that orients an individual to the field of meat processing, marketing, and merchandising. This course allows an individual to prepare for employment or continued education in the meat cutting, packing, and processing professions.

### FORESTRY

Forestry is an instructional program designed to prepare students to enter occupations related to the field of forestry. This course allows an individual to prepare for employment or continued education in the Forestry, Agriculture, Agribusiness, or Natural Resources Education in postsecondary or higher education.

## AGRICULTURE, FOOD, & NATURAL RESOURCES STUDENT ORGANIZATIONS

*Getting involved in these organizations while in high school can give you a better idea of your options within your chosen career path.*

*Give your future a boost by participating in these high school organizations.*

**FFA [www.ffa.org](http://www.ffa.org)**

For more information on this cluster, please contact the MDE at 601.359.3461 or RCU at [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

For information on specific curricula, please contact your local district.

# ARCHITECTURE AND CONSTRUCTION

## INTERESTS & ABILITIES

- Enjoys working with hands and/or tools
- Strong time-management skills
- Enjoys a variety of outside work
- Able to follow directions correctly
- Enjoys working on a team
- Strong math and science skills

**Career pathways under the Architecture and Construction cluster include:**

### ARCHITECTURE & DRAFTING

In Architecture and Drafting, you are not only taught drafting and design fundamentals but also how to apply problem-solving skills to residential and commercial buildings.

### CARPENTRY

A carpenter is a skilled craftsman who builds homes, schools, hospitals, and all types of commercial structures. It includes skills in concrete, wood and metal fabrication, roofing, and interior finish and trim.

### ELECTRICAL

The electrical field can be divided into three broad categories: Residential, Commercial, and Industrial. The main focus of an electrician is installing fixtures, switches, and wiring.

### HVAC

Heating, ventilation, and air conditioning refers to the technology of indoor heating and cooling. Today's society relies on technicians that can install, design, troubleshoot and repair electric controls, heating and cooling units, all connecting ductwork.

### MASONRY

Masonry is the study and application of building structures from individual items bound by mortar. The common materials for masonry are brick, block, stone, glass block, stucco, marble, granite and tile.

### PLUMBING

Plumbing is a career that is responsible for installing piping for drinking water and waste removal from all buildings. A plumber will install fixtures, piping, sprinkler systems, gas lines, and medical gas lines in all homes, buildings, and hospitals.

Houses, apartments, factories, offices, schools, roads, and bridges are only some of the products of the architecture and construction industry. This industry's activities include designing and building new structures, including site preparation, as well as additions and modifications to existing ones. The industry also includes the maintenance, repair, and improvements of these structures. To offset rising energy costs, some companies are opting for new buildings or energy-efficient renovations. "Green construction" is an area that is increasingly popular and involves making buildings as environmentally friendly and energy efficient as possible by using more recyclable and earth-friendly products. Construction offers a variety of career opportunities for people with many different talents and educational backgrounds. Career opportunities in construction include managers, clerical workers, accountants, engineers, truck drivers, tradespeople, and construction helpers. This cluster also will prepare you for careers in designing, planning, managing, building, and maintaining the built environment. People employed in architecture and construction areas work on new structures, restorations, additions, alterations, and repairs.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>HVAC Mechanic</i>	1,873	228	556	\$16.24
<i>Carpenters</i>	8,672	483	1,074	\$14.56
<i>Plumbers</i>	5,210	393	1,569	\$16.46
<i>Architects</i>	955	224	414	\$23.43
<i>Brickmason</i>	788	34	273	\$16.58

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

## ARCHITECTURE AND CONSTRUCTION STUDENT ORGANIZATIONS

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**SkillsUSA** [www.skillsusa.org](http://www.skillsusa.org)

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# ARTS, A/V TECHNOLOGY, AND COMMUNICATIONS

Information, communication, technology, and rapid change are leading forces in the 21st century. Professionals in these fields combine artistic expression and individual style with an in-depth understanding of today's state-of-the-art technologies. Strong communication and presentation skills, often necessary to present and sell, can also make these career choices rewarding and profitable. Flexibility and innovation have become commodities of the times. In today's creative economy, the arts provide the training and service for a workforce driven by innovation and

communication. This career cluster focuses on courses of study that, by their very nature, develop collaborative skills, creative thinking, and an appreciation for diversity. The creative sector includes not only the activities of nonprofit cultural organizations but also commercial enterprises and professionals engaged in the applied arts. This career cluster prepares you for a variety of arts, communication, and design avenues, including fine arts, graphic arts, design industries, the film and movie industry, broadcast journalism, corporate communications, social media, and public relations.

## INTERESTS & ABILITIES

- *Passion for art*
- *Strong oral- and written-communication skills*
- *Proficient in Standard English*
- *Strong computer skills*
- *Enjoys working with people*
- *Self-confident*

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Videographers</i>	175	26	296	\$11.62
<i>Multimedia Artists/Animators</i>	717	129	189	\$ 7.03
<i>TV/Video Producers</i>	426	73	216	\$13.67
<i>Graphic Designers</i>	1,623	341	860	\$12.73

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

**Career pathways under the Arts, A/V Technology, and Communications cluster include:**

### DIGITAL MEDIA TECHNOLOGY

The Digital Media Technology program prepares students to compete in a global digital workforce, including content conception, creation, and implementation. Learners will develop multimedia production skills using digital audio and video recording and editing, digital photography, motion graphics, Internet broadcasting, and data transfer and conversion from analog to digital media.

### SIMULATION & ANIMATION DESIGN

Graphic and media designers plan, analyze, and create visual solutions to communications problems. They find the most effective way to get messages across in print, electronic, and film media using a variety of methods, such as color, type, illustration, photography, and animation, as well as print and layout techniques. They also produce interactive media, such as video and Internet games.

## ARTS, A/V TECHNOLOGY, AND COMMUNICATIONS STUDENT ORGANIZATIONS

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**TSA [www.tsaweb.org](http://www.tsaweb.org)**

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# BUSINESS MANAGEMENT AND ADMINISTRATION

Workers with the skill sets necessary for efficient business, management, and administration operations fuel U.S. enterprises. Rewarding careers in this area of study can lead to a myriad of different companies and markets. Business, management, and administration professionals plan, direct, maintain, and organize business operations for an organization. Business fundamentals serve as the foundation for all business pathways. Courses in business provide instruction in basic business skills and knowledge related to economic

## INTERESTS & ABILITIES

- Strong English, math, and public-speaking skills
- Attention to detail
- Enjoys dressing professionally
- Excellent interpersonal skills

fundamentals, management, communications, finance, human relations, career development, ethics, and business etiquette. This cluster prepares you for careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
Cashiers	41,134	5,324	24,782	\$8.54
Administrative Assistants	7,247	1,083	2,091	\$14.62
Recruiters	1,749	748	1,237	\$15.47
Chief Executives	5,027	698	2,142	\$32.07

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

**Career pathway under the Business Management and Administration cluster include:**

### MANAGEMENT

Management is the act of getting people together to accomplish desired goals and objectives using available resources efficiently and effectively. Management comprises planning, organizing, staffing, leading or directing, and controlling an effort for the purpose of accomplishing a goal.

## BUSINESS MANAGEMENT AND ADMINISTRATION

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**FBLA [www.fbla-pbl.org](http://www.fbla-pbl.org)**

**DECA [www.deca.org](http://www.deca.org)**

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# EDUCATION AND TRAINING

Education is the future of our economy and a vital part of everyone's life. The level and type of education that individuals receive is a major influence on both the jobs they are able to hold and their earnings. Lifelong learning is important in acquiring new knowledge and upgrading one's skills, particularly in this age of rapid technological and economic change. This cluster focuses on preparing you to work in a variety of institutions that offer academic education, career and technical instruction, and other education and training to thousands of students each year. This industry also includes institutions that provide training, consulting, and other support services to schools and students, such as curriculum development, student

## INTERESTS & ABILITIES

- *Excellent public-speaking skills*
- *Enjoys working with people*
- *Strong organizational skills*
- *Desire to learn*

exchanges, and tutoring. Also included are schools or programs that offer nonacademic self-enrichment classes, including automobile driving and cooking instruction, among others.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Elementary School Teacher</i>	14,180	1,851	5,256	\$24.40
<i>High School Teachers</i>	12,554	833	4,697	\$25.25
<i>CTE Teachers</i>	12,432	1,948	4,166	\$33.09
<i>School Administrators</i>	952	5	396	\$32.44
<i>Teacher Assistants</i>	10,859	873	3,907	\$10.36

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

**Career pathway under the Education and Training cluster include:**

### TEACHER ACADEMY

Teacher Academy is the program that encompasses professional education preparation programs.

## EDUCATION AND TRAINING STUDENT ORGANIZATIONS

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**FEA [www.futureeducators.org](http://www.futureeducators.org)**

For more information on this cluster, please contact the MDE at 601.359.3461 or RCU at [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).  
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# FINANCE

## INTERESTS & ABILITIES

- *Strong math, English, and computer skills*
- *Detail oriented*
- *Highly organized*

The finance industry deals with the management, investment, transfer, and lending of money. Every company utilizes money, and the finance area is responsible for handling those funds. The finance industry is very large, encompassing everything from small, local businesses and banks to the multinational corporations and investment banks regularly featured in

news headlines. The Finance career cluster prepares you for careers in financial and investment planning, banking, insurance, and business financial management.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Tellers</i>	5,557	342	2,972	\$10.83
<i>Financial Advisors</i>	7,190	3,935	4,753	\$11.28
<i>Bookkeeping Clerks</i>	20,999	2,710	5,360	\$14.18
<i>Accountants</i>	7,554	1,544	2,856	\$17.61

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com)

***Career pathway under the Finance cluster include:***

## FINANCE & ACCOUNTING

Finance and Accounting presents careers that deal with numbers. If you travel down this pathway, you could find yourself crunching numbers and overseeing budgets or closing real estate deals.

## FINANCE STUDENT ORGANIZATIONS

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# GOVERNMENT AND PUBLIC ADMINISTRATION

## INTERESTS & ABILITIES

- *Strong English and public-speaking skills*
- *Strong code of ethics*
- *Strong organizational and time-management skills*
- *Enjoys leading and working on a team*
- *Desires to help others*

**Career pathways under this cluster include:**

### GOVERNANCE

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### NATIONAL SECURITY

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### FOREIGN SERVICE

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### PLANNING

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### REVENUE AND TAXATION

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### REGULATION

This pathway relates to planning and performing government functions at the local, state, and federal levels.

### PUBLIC MANAGEMENT AND ADMIN

This pathway relates to planning and performing government functions at the local, state, and federal levels.

The field of government and public administration provides ample opportunity to help one's fellow citizens. These jobs are vital to ensure and enable governmental services reach the American people. Many of these positions facilitate assistance activities that are critical to the function of American society. Employees in government or public administration careers keep our society running and functioning in ways that are nearly invisible to most people. For instance, some of these tasks include safeguarding national borders and supporting diplomatic missions, as well as planning urban developments, administering public programs, and analyzing tax policies. This cluster includes careers in governance, national security, foreign service, planning, revenue and taxation, regulation, and management and administration at the local, state, and federal levels.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Research Planning Aides</i>	99	18	61	\$13.44
<i>Government Property Inspectors</i>	12,588	1,144	2,940	\$13.00
<i>Urban Planner</i>	129	23	50	\$22.78
<i>Postal Service Clerks</i>	604	-130	125	\$25.25

## GOVERNMENT AND PUBLIC ADMINISTRATION STUDENT ORGANIZATIONS

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**FBLA [www.fbla-pbl.org](http://www.fbla-pbl.org)**

**FCCLA [www.fcclainc.org](http://www.fcclainc.org)**

**JROTC [www.usarmyjrotc.com](http://www.usarmyjrotc.com)**

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# HEALTH SCIENCE

If these qualities describe you, then you should consider this career cluster. Healthcare is the largest and fastest growing industry in the United States. In this rapidly changing industry, technological advances have made many new procedures and methods of diagnosis and treatment possible. Clinical developments, such as infection control, less invasive surgical techniques, advances in reproductive technology, and gene therapy for cancer treatment, continue to increase the longevity and improve the quality of life of many Americans. In addition, advances in information technology have improved patient care and worker efficiency. Devices, such as handheld computers, are used to record a patient's medical history. Information on vital signs and orders for tests are transferred electronically to a main database; this process eliminates the need for paper and reduces record-keeping errors. In

## INTERESTS & ABILITIES

- *Strong math, science, and computer skills*
- *Attention to detail*
- *Desire to help others*
- *Strong interpersonal skills*

this cluster, you will be prepared for careers promoting health and wellness and diagnosing and treating injuries and diseases. Some careers involve working directly with people, and others involve researching diseases or collecting and formatting data and information. Settings include hospitals, medical or dental offices, laboratories, medical evacuation units, sports arenas, and cruise ships.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Pharmacy Technicians</i>	3,041	757	1,555	\$11.34
<i>Registered Nurses</i>	28,823	7,077	12,238	\$26.11
<i>Physical Therapists</i>	1,776	514	743	\$32.61
<i>Dentists</i>	808	150	392	\$63.68

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathways under the Health Science cluster include:**

### HEALTHCARE AND CLINICAL SERVICES

Healthcare providers administer hands-on care, assess healthcare needs, and provide administrative functions. Careers in this field include nurses, dietitians, dentists, laboratory technicians, paramedics, respiratory therapists, medical transcriptionists, physicians, physical and occupational therapists, optometrists, and many others.

### DENTAL ASSISTING TECHNOLOGY

A dental assistant is a vital member of the dental team possessing clinical, technical, laboratory, administrative, and communication skills. Responsibilities may include exposing x-rays, polishing teeth, preparing dental materials, sterilizing dental instruments, and instructing patients on post-operative and preventative oral health care.

### SPORTS MEDICINE

The sports medicine field deals with physical fitness and the prevention and treatment of injuries related to exercise and sports. Careers in this field include athletic trainer, physical therapist, kinesiologist, exercise physiologist and others.

## HEALTH SCIENCE STUDENT ORGANIZATIONS

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**HOSA [www.hosa.org](http://www.hosa.org)**

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# HOSPITALITY AND TOURISM

## INTERESTS & ABILITIES

- Possesses strong communication and organization skills
- Enjoys dressing professionally
- Enjoys working with people

As long as people have free time, they will pursue leisure activities. As leisure time and personal incomes continue to grow across the nation, so will the hospitality industry. Practically any activity that occupies a person's leisure time is part of this industry. This includes theatrical activities, such as

attending a cinema for a movie, going to a community theater for a play, enjoying gaming entertainment offered by casinos, or taking part in sporting activities, such as kayaking, tennis, or surfing. Food services, restaurants, and cocktail establishments may be the world's most widespread and familiar category within this industry. People travel for a variety of reasons, including vacations, business, and visits to friends and relatives. Many of these travelers will stay in hotels and other accommodations while out of town. Resort and casino hotels offer a variety of activities to keep travelers and families occupied for much of their stay. This industry also includes physical fitness facilities that feature exercise and weight-loss programs, gyms, health clubs, and day spas. This career cluster prepares you for careers in the management, marketing, and operation of restaurants and other food-related industry, as well as lodging establishments, tourist attractions, recreation, and travel services.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Hotel Desk Clerks</i>	2,530	795	1,774	\$8.91
<i>Convention Planners</i>	409	81	177	\$11.37
<i>Floor Prep Managers</i>	9,220	1,167	2,147	\$11.87
<i>Chefs</i>	857	97	204	\$13.58

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathways under the Hospitality and Tourism cluster include:**

### CULINARY ARTS

Culinary art is the art of preparing and cooking foods. Culinary artists are responsible for skillfully preparing meals that are as pleasing to the eye as to the palate. They are required to have knowledge of the science of food and an understanding of diet and nutrition. They work primarily in restaurants, delicatessens, hospitals, and other institutions.

### LODGING, HOSPITALITY, & TOURISM MANAGEMENT

Lodging, hospitality, and tourism management professionals work in hotels, restaurants, and other service-oriented businesses. To be successful in this field, you must have a strong business foundation and good customer service skills.

## HOSPITALITY AND TOURISM STUDENT ORGANIZATIONS

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**SkillsUSA** [www.skillsusa.org](http://www.skillsusa.org)

**FCCLA** [www.fcclainc.org](http://www.fcclainc.org)

**DECA** [www.deca.org](http://www.deca.org)

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# HUMAN SERVICES

The human-services field relates to family and human needs. Work environments could vary from public schools to private child-care centers to personal households. At times, people need assistance to live full and productive lives. People might need assistance finding a job, locating safe and adequate housing, or getting nutritious food for their families. Human services help individuals and families become healthy and productive members of society. Assistance establishments provide an assortment of services that include helping the homeless, counseling troubled individuals, training the unemployed, and helping families obtain aid. In general, individuals in this industry work to improve the lives of the

## INTERESTS & ABILITIES

- *Strong English and public-speaking skills*
- *Patience and compassion*
- *Enjoys working with people*

people they serve and to enrich communities. The services provided are diverse, depending on the local population and its needs. This cluster will prepare you for careers in social service agencies, community and civic organizations, child care, and charities.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Preschool Teacher</i>	2,721	336	1,506	\$ 9.26
<i>Social Service Assistants</i>	1,892	492	905	\$10.76
<i>Substance Abuse Social Workers</i>	1,075	258	536	\$15.36
<i>Clinical Psychologists</i>	2,289	397	1,071	\$20.84
<i>Preschool Administrator</i>	558	38	338	\$13.61

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathway under the Human Services cluster include:**

### EARLY CHILDHOOD EDUCATION

Early childhood education is the formal teaching and care of young children by people other than their family members or in settings outside of the home.

### HUMAN SERVICES STUDENT ORGANIZATIONS

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**FCCLA [www.fcclainc.org](http://www.fcclainc.org)**

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# INFORMATION TECHNOLOGY

Information technology (IT) careers are available in every sector of the economy. IT manages the information and applications that office workers everywhere rely on to do their jobs. Careers in IT involve the design, development, support, and management of hardware, software, multimedia and systems-integration services. The IT industry is a dynamic and entrepreneurial field that continues to have a revolutionary impact on the U.S. and worldwide economies. IT specialists create products and set up and maintain information systems. IT professionals focus on improving the usability and efficiency of technological systems and processes. Students in this cluster will gain the basic foundation, skills, and knowledge for computer networking, applications, and support. Students will develop the skills necessary

## INTERESTS & ABILITIES

- *Strong English, math, and computer skills*
- *Enjoys solving problems*
- *Works well on a team*

to prepare for certification exams and will learn how to develop, support, and integrate computing systems. They will acquire network planning and management skills and the ability to provide technical support. The cluster will provide hands-on experience in computer-system support and skills in network setup and maintenance.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Computer Support Specialists</i>	2,532	352	1,093	\$16.98
<i>Network Administrators</i>	1,669	401	688	\$22.78
<i>Software Engineers</i>	471	158	200	\$29.62
<i>Information Systems Manager</i>	1,159	214	414	\$30.74

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***Career pathway under the Information Technology cluster include:***

## INFORMATION TECHNOLOGY

Information technology is the use of computers and software to manage information. This field focuses on the acquisition, processing, storage, and dissemination of vocal, pictorial, textual, and numerical information by a microelectronics-based combination of computing and telecommunications.

## INFORMATION TECHNOLOGY STUDENT ORGANIZATIONS

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# LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY

## INTERESTS & ABILITIES

- *Strong oral- and written-communication skills*
- *Strong code of ethics*
- *Strong organization and time-management skills*
- *Enjoys working on a team*
- *Enjoys following rules and directions*

Do you like the idea of protecting people? Do you want to help people figure out the legal system? If so, this may be the cluster for you. Occupations in law, public safety, corrections, and security involve planning, managing, and providing legal, public safety, protective, and homeland security services, including the professional and technical-support assistance related to these fields. Careers within this cluster are found in a variety of settings and most

often involve serving and/or protecting our citizens. Typically, this cluster appeals to outgoing people who can think on their feet and enjoy helping others, planning, or protecting. This cluster prepares students for careers in areas such as criminology, legal studies, forensics, and psychology.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Paralegals</i>	1,926	292	571	\$17.34
<i>Forensic Science Technicians</i>	62	14	41	\$17.63
<i>Police Detectives</i>	1,042	147	384	\$20.04
<i>Lawyers</i>	5,479	491	1,673	\$28.55
<i>Firefighters</i>	2,635	225	325	\$15.21
<i>Police Officers</i>	6,756	337	416	\$15.29
<i>Emergency Medical Technicians</i>	1,973	137	186	\$14.13

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathway under the Law, Public Safety, Corrections and Security cluster include:**

### LAW & PUBLIC SAFETY

Law and public safety professionals help ensure the public's welfare and well-being through their work in the public safety departments of municipalities, counties, states or the federal government. These officials are the first responders to man-made and natural disasters and are trained to rescue victims who are in harm's way.

## LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY STUDENT ORGANIZATIONS

*Getting involved in these organizations while in high school can give you a better idea of your options within your chosen career path.*

*Give your future a boost by participating in these high school organizations.*

**SkillsUSA [www.skillsusa.org](http://www.skillsusa.org)**

For more information on this cluster, please contact the MDE at 601.359.3461 or RCU at [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

For information on specific curricula please contact your local district.

# MANUFACTURING

## INTERESTS & ABILITIES

- Strong math and technical skills
- Strong attention-to-detail and time-management skills
- Enjoys working on a team
- Enjoys giving and following directions

**Career pathways under the Manufacturing cluster include:**

### INDUSTRIAL MAINTENANCE

Industrial maintenance is the hands-on maintenance and repair of rotating equipment used in industrial facilities.

### METAL FABRICATION

Metal Fabrication is the process by which stock and custom-sized material is cut, sheared, coped, fitted, rolled, and welded to replicate a design drafted most often by architects and engineers.

### PRECISION MACHINING

Precision machining utilizes a variety of machining technologies and lean manufacturing processes across diverse materials and alloys to produce superior parts and performance.

### WELDING

Welding is a process that joins materials, usually metals or thermoplastics, by causing coalescence. This is often done by melting the workpieces and adding a filler material to form a pool of molten material that cools to become a strong joint, with pressure sometimes used in conjunction with heat, or by itself, to produce the weld.

Manufacturing is one of the oldest industries in the technological world. Manufacturing industries are the chief wealth-producing sectors of an economy. Manufacturing employs a huge share of the labor force and produces materials required by sectors of strategic importance, such as national infrastructure and defense. This cluster includes careers that manufacture products, maintain production facilities, and improve the production process.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Plant Operators</i>	975	262	486	\$13.93
<i>Welders</i>	267	4	116	\$14.44
<i>Product Safety Engineers</i>	180	20	69	\$27.93
<i>Industrial Production Managers</i>	1,377	76	641	\$33.57
<i>Machinists</i>	4,119	615	1,295	\$18.12
<i>Industrial Machinery Mechanic</i>	2,772	520	982	\$19.58
<i>Machine Maintenance Worker</i>	840	107	256	\$16.44

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

## MANUFACTURING STUDENT ORGANIZATIONS

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# MARKETING

## INTERESTS & ABILITIES

- *Strong communication, math, and technical skills*
- *Enjoys dressing professionally*
- *Possesses creativity*
- *Strong organization and time-management skills*

Overall employment in the field of marketing is expected to increase rapidly. Job growth will occur as companies seek to differentiate their goods and services in an increasingly crowded market, resulting in a greater demand for talented marketing professionals. However, this growth varies widely by sector; the majority of growth is anticipated in scientific, professional, healthcare,

and technical services realms. There will be increased competition for full-time marketing opportunities because the field appeals to many job seekers. The best opportunities will be available to those with a high level of creativity and technical skills who can conduct marketing activities on the Internet and to a broad range of target segments.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Customer Service Representatives</i>	12,868	2,774	7,097	\$11.95
<i>Retail Managers</i>	25,400	1,271	7,372	\$13.47
<i>Advertising Managers</i>	345	22	116	\$21.95
<i>Sales Representatives</i>	10,035	692	3,441	\$23.08

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

***Career pathway under the Marketing cluster include:***

## MARKETING

Marketing is the process that creates, communicates, and delivers the message to the customer and maintains the relationship with customers.

## MARKETING STUDENT ORGANIZATIONS

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**DECA [www.deca.org](http://www.deca.org)**

**FBLA [www.fbla.org](http://www.fbla.org)**

For more information on this cluster, please contact the MDE at 601.359.3461 or RCU at [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

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# SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS

Professionals in these career fields apply the principles of science and mathematics to develop solutions to problems. Their work is to link scientific discoveries with commercial applications that meet societal and consumer needs. People successful in this field often have mathematical and creative backgrounds combined with good problem solving skills. Positions in STEM fields are challenging and ever-changing due to new inventions and innovations. Successful careers in these high-tech fields require people who are willing to take risks and to question learning in order to discover new possibilities. They understand the roles of collaboration, which include gathering research, creating new experiments, and processing and sharing data. Positions are available in a wide variety of workplaces, including hospitals, government agencies, corporate research and development departments, forensic

## INTERESTS & ABILITIES

- *Strong math and science skills*
- *Strong attention to detail*

laboratories, and scientific classrooms. This cluster prepares you to plan, manage, conduct, and share scientific research. STEM employees also work in professional and technical services, including laboratory, testing, and investigation, as well as in research and development services.

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Chemists</i>	301	19	131	\$30.14
<i>Electrical Engineering Technicians (Lineworkers)</i>	1,151	105	357	\$25.68
<i>Mechanical Engineers</i>	996	177	457	\$29.95
<i>Chemical Technician</i>	369	13	119	\$19.13

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathways under the Science, Technology, Engineer, & Mathematics cluster include:**

### POLYMER SCIENCE

Polymer Science provides custom coating, converting, and packaging solutions for the medical, pharmaceutical, automotive, electronic, and industrial markets.

### ENGINEERING

Engineering is the discipline of acquiring and applying scientific, mathematical, economic, social, and practical knowledge in order to design and build structures, machines, devices, systems, materials, and processes.

### ENERGY

Energy Technology is a pathway to introduce the student to the energy industry, including forms of alternative energy, and the critical need for a skilled energy workforce.

## SCIENCE, TECHNOLOGY, ENGINEERING, & MATHEMATICS STUDENT ORGANIZATIONS

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**SkillsUSA** [www.skillsusa.org](http://www.skillsusa.org)

**TSA** [www.tsaweb.org](http://www.tsaweb.org)

For more information on this pathway, please contact the MDE at 601.359.3461 or RCU at [helpdesk@rcu.msstate.edu](mailto:helpdesk@rcu.msstate.edu).

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# TRANSPORTATION, DISTRIBUTION, AND LOGISTICS

Transportation, distribution, and logistics (TDL) relates to how goods are moved from one place to another. As far as goods and services are concerned, our world is flat. TDL takes care of how we get Mississippi farm-raised catfish to Europe and how the latest Paris styles arrive in the United States. TDL industries need motivated people with new

ideas to ensure the U.S. transportation system continues to work efficiently. This cluster includes the planning, management, and movement of people, materials, and products by road, air, rail, and water. It also includes related professional and technical services, such as infrastructure planning and management, logistics, and maintenance of equipment and facilities.

## INTERESTS & ABILITIES

- *Strong computer skills*
- *Attention to detail*
- *Strong organizational and time-management skills*

## MISSISSIPPI INDUSTRY OUTLOOK

Career	2010 Employment	2020 Projected Growth	Total Projected Openings	Average Hourly
<i>Railroad Conductor</i>	570	51	282	\$32.49
<i>Cargo Agent</i>	372	86	185	\$13.91
<i>Civil Engineers</i>	2,010	512	868	\$33.01
<i>Air Traffic Controllers</i>	47	2	20	\$39.42
<i>Truck Drivers</i>	26,795	4,021	9,284	\$15.92

Data obtained Nov 2011 from [www.economicmodeling.com](http://www.economicmodeling.com).

**Career pathways under the Transportation, Distribution and Logistics cluster include:**

### AUTOMOTIVE SERVICE TECHNICIAN

Automotive service technicians inspect, maintain, and repair automobiles and light trucks that run on gasoline, electricity, or alternative fuels, such as ethanol. They perform basic maintenance, such as oil changes and tire rotations, diagnose more complex problems, and plan and execute vehicle repairs.

### COLLISION REPAIR TECHNICIAN

Collision repair technicians are knowledgeable in the field of auto body repair and possess the necessary skills to perform related repairs and custom refinishing according to the manufacturer's specifications. They fix damaged bodies and body parts for a variety of automotive vehicles, including cars, vans, trucks, buses, campers, and trailers.

### DIESEL SERVICE TECHNICIAN

Diesel service technicians and mechanics repair and maintain the diesel engines that power transportation equipment, including heavy trucks, buses, and locomotives. Some diesel technicians and mechanics also work on heavy vehicles and mobile equipment, including bulldozers, cranes, road graders, farm tractors, and combines.

### TRANSPORTATION LOGISTICS

Logisticians analyze and coordinate an organization's supply chain—the system that moves a product from supplier to consumer. Logistics consists of order processing, warehousing, and distributing products by road, air, and water.

## TRANSPORTATION, DISTRIBUTION, AND LOGISTICS STUDENT ORGANIZATIONS

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