

A Historical Perspective of Career Clusters

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Historical Context of Career and Technical Education and Its Relationship to Clusters

- Prior to Smith-Hughes
- Smith-Hughes, until VEA 63
- VEA 63-Carl Perkins I, (1984)
- Career Education Legislation (1976)
- Perkins I-Perkins IV (1984-Present)

Historical Context Continued:

■ Prior to Smith- Hughes

- ◆ Morrill Act (1862) (Land Grant Colleges) (Agricultural and Mechanical)
- ◆ Nelson Act of 1907- Expanded Scope
- ◆ Massachusetts Commission-1906
- ◆ National Society for the Promotion of Industrial Education: A name change and merger led to the formation of AVA, subsequently ACTE

Historical Context Continued:

- Smith-Hughes to VEA 63
 - ◆ Smith-Hughes (1917)
 - ◆ Promotion of Vocational Education
 - ◆ Promoted cooperation with states in the promotion of Agriculture and Trades and Industry
 - ◆ Promoted cooperation with states in the preparation of teachers
 - ◆ Created a permanent appropriation
 - ◆ Provided regulation of funding
 - ◆ Established Federal Board of Vocational Education

Historical Context Continued

- Smith-Hughes to VEA 63
 - ◆ George-Reed Act (1929-1934)
 - ◆ Expanded AG and T&I
 - ◆ Removed Home Economics from T&I
 - ◆ George-Ellzey Act (1934-1937)
 - ◆ George-Deen Act (1937)

Historical Context Continued

- ◆ George Barden Act I
 - ◆ Increased the authorization level
 - ◆ Provided states greater flexibility
 - ◆ Provided salaries for vocational counselors, occupational information, data collection
 - ◆ Amendment 1 Created Fishery Training
- ◆ George Barden II
 - ◆ Introduced Nurse training
- ◆ George Barden III: Created National Defense Education Act and added an emphasis on Technical
- ◆ George Barden IV: Continued expansion of concept

Historical Context Continued

- ◆ Area Redevelopment Act
- ◆ Manpower Development Act
- ◆ The National Manpower Council (1951-1964)
- ◆ The Panel of Consultants on Vocational Education

The Panel of Consultants on Vocational Education

- Complimentary about the need for quality Vocational Education to address economical and social needs but felt very strongly that the field had to be reformed since it was too focused on specific occupational areas and was very set in its ways
 - ◆ Program chiefs ruled the roost
 - ◆ Specified that curriculum be based on analysis of areas to be taught
 - ◆ Promoted the need for proper equipment
 - ◆ Promoted the need for better teacher preparation
 - ◆ Promoted increased funding support
 - ◆ Promoted Advisory Committees for each area

Historical Context Continued:

- VEA 63 till Perkins I

- ◆ VEA 63

- ◆ Changed emphasis from specific occupation areas to any area for which a need could be demonstrated
 - ◆ Eliminated categorical funding by program area
 - ◆ Set aside 10% for research and development
 - ◆ Emphasized importance of emerging occupations
 - ◆ Expanded groups to be served to include:
 - Secondary students in school
 - Secondary students that wished to continue full time education and training beyond high school
 - Already employed, unemployed and underemployed
 - Persons with disabilities and disadvantaged

Historical Context Continued:

- VEA 63 until Perkins I

- ◆ 68 Amendments

- ◆ Even with the sweeping changes in VEA 63, little changed so all aspects of the law were tightened
 - ◆ Rescinded all previous legislation except for Smith-Hughes
 - ◆ Provided 20% of the funds for Federal and State Support for Research, Curriculum Development Professional Development and Exemplary Programs

- 76 Amendments

- ◆ Added an emphasis on Sex Equity and Career Guidance under the 20% set aside above

Definitions of Career Education

An effort aimed at focusing American education and the actions of the broader community in ways that will help individuals acquire and use the knowledge, skills and attitudes necessary for each to make work a meaningful productive, and satisfying part of his or her way of living.

As per the U. S Office of Education: Early 70's

Definitions of Career Education

Career is the totality of work one does in his or her lifetime, “Education” is the totality of experiences through which one learns. Based on these two definitions, “career education” is the totality of experiences through which one learns about work as a part of his or her way of living. “Career is a developmental concept beginning in the very early years and continuing well into the retirement years. “Education,” as defined here, obviously includes more than the formal educational system. Thus, this generic definition of career education is purposely intended to be of a very broad and encompassing nature. At the same time, it is intended to be considerably less than all of one’s reasons for living. As per Dr. Kenneth Hoyt

Dr. Sidney P Marland's Fifteen Career Education Clusters

- Agri-Business and Natural Resources Occupations
- Business and Office Occupations
- Communications and Media Occupations
- Construction Occupations
- Consumer and Homemaking Occupations
- Environmental Control Occupations
- Fine Arts and Humanities Occupations
- Health Occupations

Dr. Sidney P Marland's Fifteen Career Education Clusters

- Hospitality and Recreation Occupations
- Manufacturing Occupations
- Marine Science Occupations
- Marketing and Distribution Occupations
- Personal Services Occupations
- Public Service Occupations
- Transportation Occupations

Four Career Education Experimental Models Supported By the U. S. Office of Education in 1973

- **School Based Model**
- **Employee-Experience-Based Model**
- **Rural-Residential-Based Model**
- **Home-Community-Based Model**

Significant Legislation Regarding Career Education

- Section 406, Title 1V, Public Law 93-380 (Educational Amendments of 1974) made Career Education a law of the land establishing a National Advisory on Career Education
 - ◆ Every child should, by the time they have completed secondary school, be prepared for gainful employment and for full participation in society according to this or her ability.
 - ◆ It is the obligation of each LEA to provide that preparation for all children (including handicapped children and all other children who are educationally disadvantaged) within the school district of such agency; and
 - ◆ Each state and local educational agency should carry out a program of career education options which are designed to prepare each child for maximum employment and participation in our society according to his or her ability

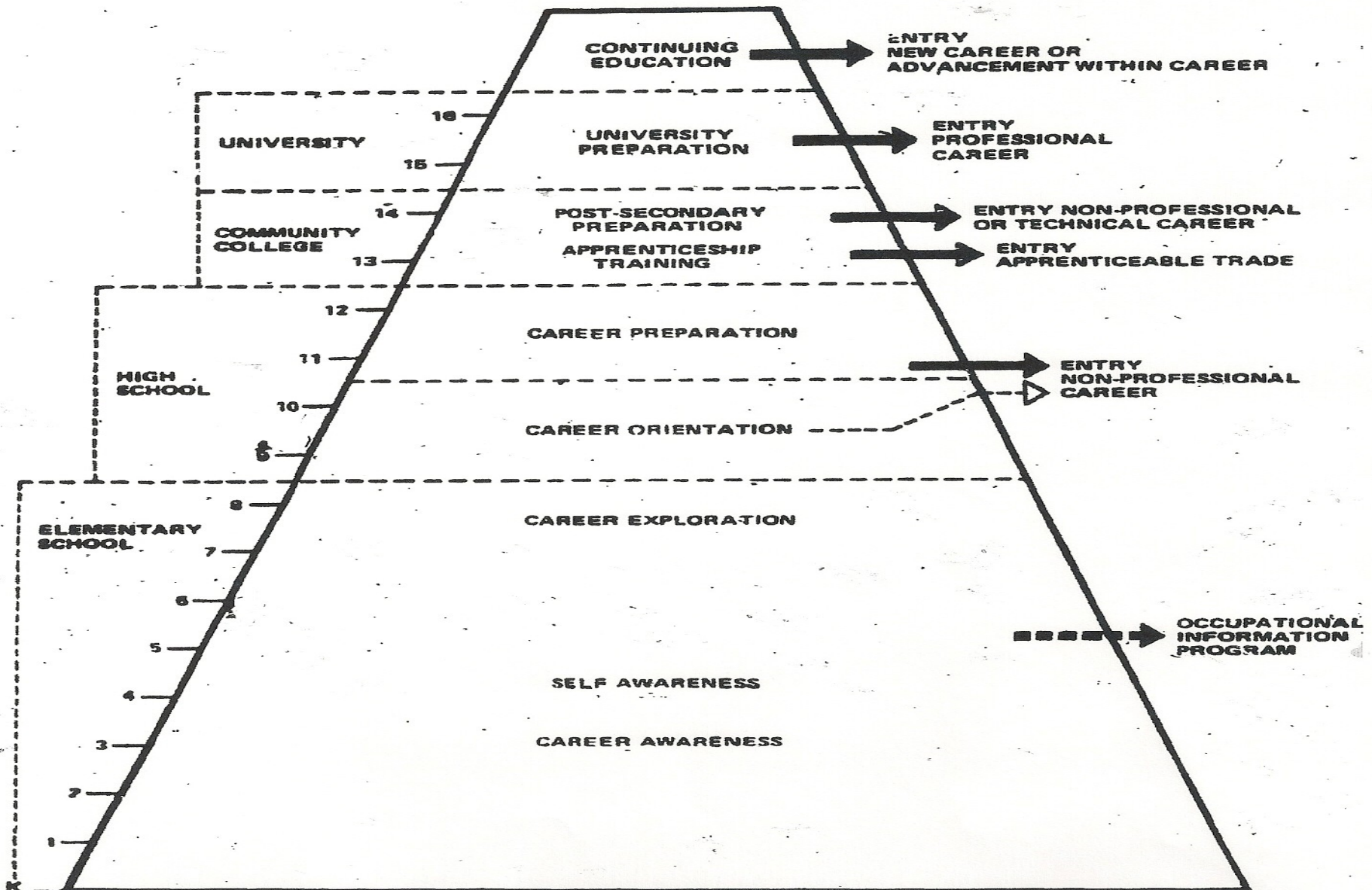
The Career Education Incentive Act 92-207 (1977)

- ◆ The purpose of the Career Education Incentive Act is to assist states and local educational agencies and institutions of postsecondary education including collaborative arrangements with the appropriate agencies and organizations in making education as preparation for work, and as a means of relating work values to life roles and choices (such as family life), a major goal of all who teach and all who learn by increasing the emphasis they place on career awareness, exploration, decision making, and planning. And to do so in a manner which will promote equal opportunity in making career choices through the elimination of bias and stereotyping in such activities, including bias and stereotyping on account of race, sex, age, economic status or handicap.
- ◆ Created an office of Career Education with a director (Dr. Ken Hoyt) and provided funding, thou modest when compared to the Vocational Education Appropriation

The Career Education Incentive Act 92-207 (1977)

- ◆ Unfortunately, the creation of an office, appointment of a director and provision of resources had the exact opposite effect that was hoped for in passing the legislation.
- ◆ It seems that prior to this event everyone saw them self as having a place in what most viewed as a concept or framework.
- ◆ However, once the office was established people began to view it as a competitive program instead of the umbrella concept it had been viewed as previously.
- ◆ Consequently, Career Education as an official function slowly died so to speak.
- ◆ However, there are still examples of several of the principles still present if you know where to look.

ILLINOIS CAREER EDUCATION MODEL



**The Personal and
Business
Services Cluster**



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**The Government
Services
Cluster**



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**The
Transportation
Cluster**



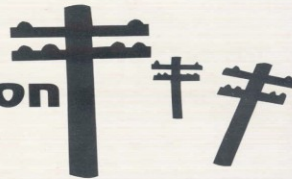
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**The
Manufacturing
Cluster**



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**The
Communication
Cluster**



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**The
Education
Cluster**



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*The Arts,
Culture
And Religion Cluster*



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**The
Agriculture
Cluster**

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The Finance Cluster

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The Natural Resources Cluster



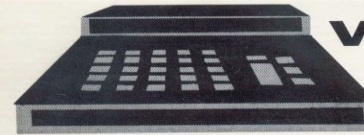
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THE ENERGY CLUSTER

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The Retailing and Wholesaling Cluster



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The Insurance Cluster

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The Hospitality Cluster

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The Health Care Cluster

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Historical Context Continued

- Perkins I through IV
 - ◆ Increased emphasis on Integration of Academic and Occupational Skills (Perkins I)
 - ◆ Moved evaluation from looking at 20% of the programs each year to documentation of student competence in technical and academic skills
 - ◆ Added Tech Prep in Perkins II
 - ◆ Placed emphasis on Career Pathways and Program of Studies in Perkins IV

CONCLUSIONS REGARDING CLASSIFICATION SYSTEMS

Based on everything that was reviewed and summarized herein, it is recommended that a three or four tier classification system be developed for both the DOT and the occupational cluster classification system. A set of titles for each occupational family is shown below. They have been derived by broadening the context of the Occupational Titles shown on the right side of TABLE 4, Classification of Instructional Programs. With a few word changes in the base list plus the addition of such terms as arts, finance, education and training, we can develop a schema that can also include management and higher level clusters. Once these modified titles were derived, they were matched against the other systems under review to insure inclusiveness. It's interesting how closely this list parallels the prototype system being developed for DOL using the Canadian model as a base.

The Occupational Family Titles that emerge are:

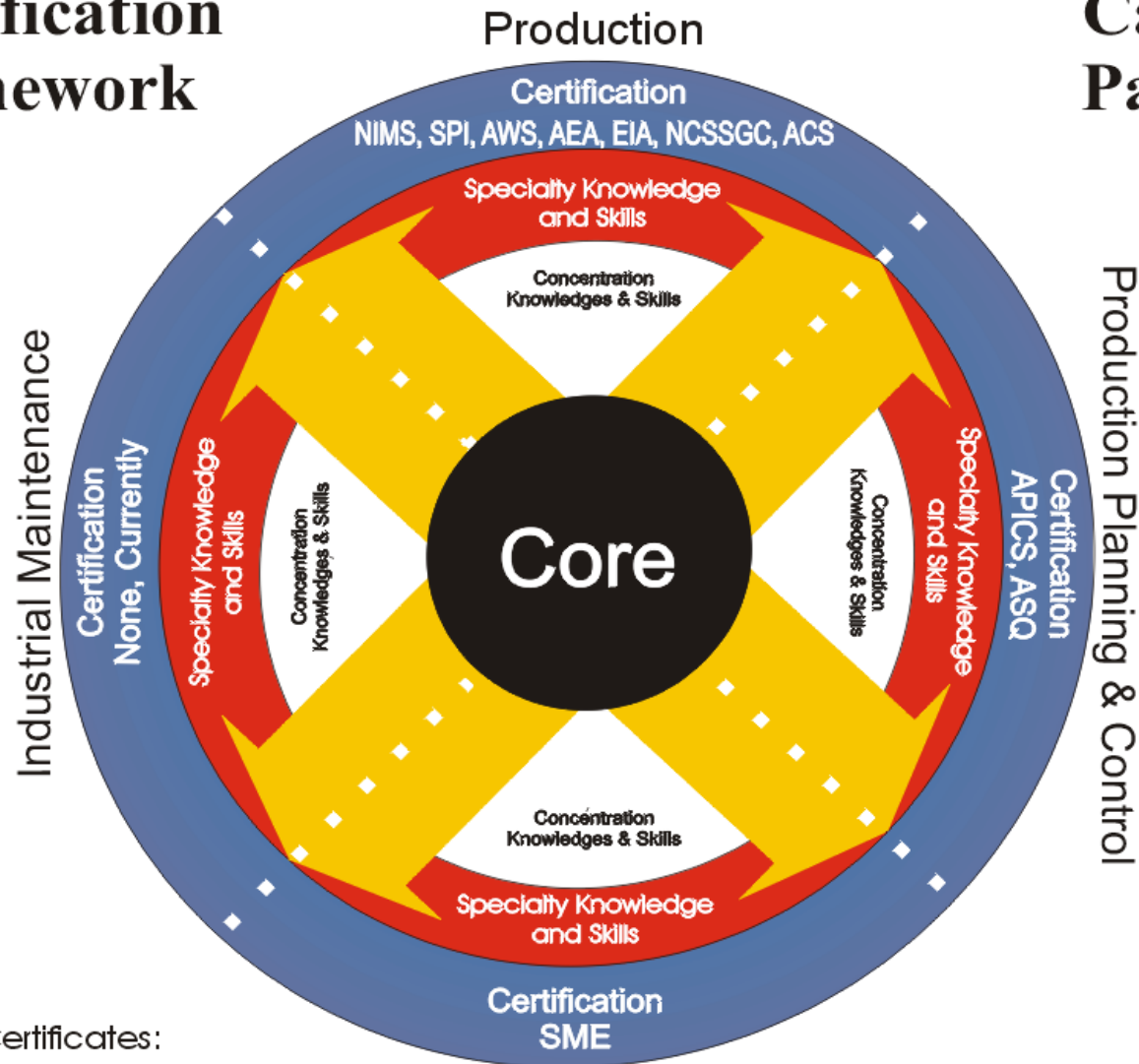
CIP Codes

CIP TITLES

01, 02,03	AGRICULTURAL, FORESTRY, NATURAL RESOURCE
08	OCCUPATIONS MARKETING AND DISTRIBUTIVE OCCUPATIONS
	PERSONAL SERVICE AND MISCELLANEOUS OCCUPATIONS
09, 10	ARTS AND COMMUNICATION OCCUPATIONS
14, 14, 15, 41	ENGINEERING AND SCIENCE RELATED OCCUPATIONS
08, 20,31	HOSPITALITY AND TOURISM OCCUPATIONS
22, 43	PROTECTIVE AND LEGAL SERVICES OCCUPATIONS
46	CONSTRUCTION TRADES OCCUPATIONS
47	MECHANICSITECHNICIANS, INSTALLERS, REPAIRER SERVICE
	OCCUPATIONS
48	PRECISION AND PRODUCTION OCCUPATIONS
49	TRANSPORTATION AND MATERIAL MOVING OCCUPATIONS
51	HEALTH OCCUPATIONS
44, 52	BUSINESS, FINANCE MANAGEMENT AND ADMINISTRATION
13	EDUCATION AND TRAINING OCCUPATIONS

Certification Framework

Career Pathway



Current Certificates:

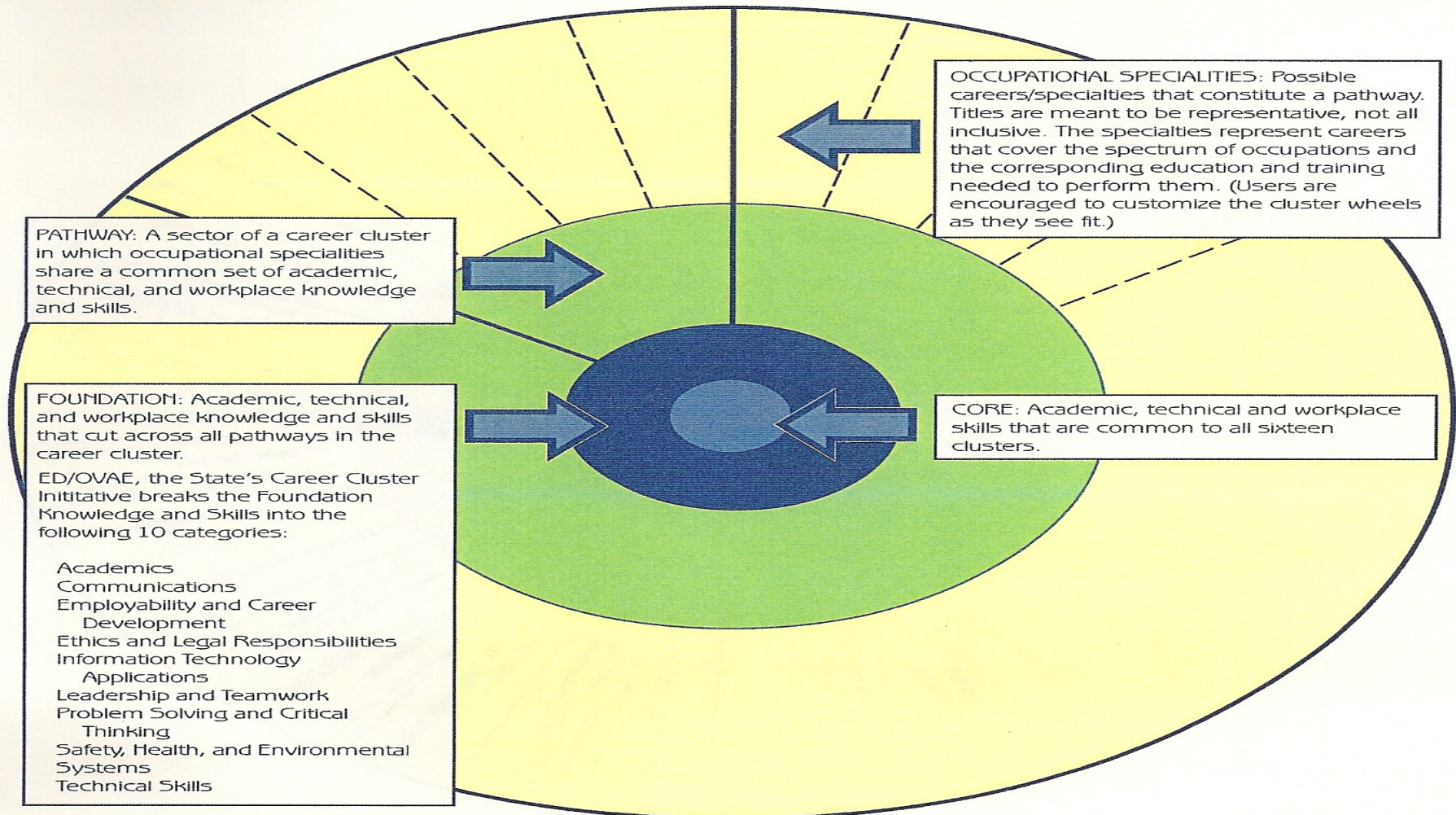
ACS	American Chemical Society
AEA	American Electronics Association
APICS	American Production and Inventory Control Society
ASQC	American Society for Quality
AWS	American Welding Society

EIA	Electronics Industry Association
NCSSGC	National Council for Skill Standards in Graphic Communications
NIMS	National Institute for Metalworking Skills
SME	Society of Manufacturing Engineers
SPI	Society of the Plastics Industry

Manufacturing Cluster

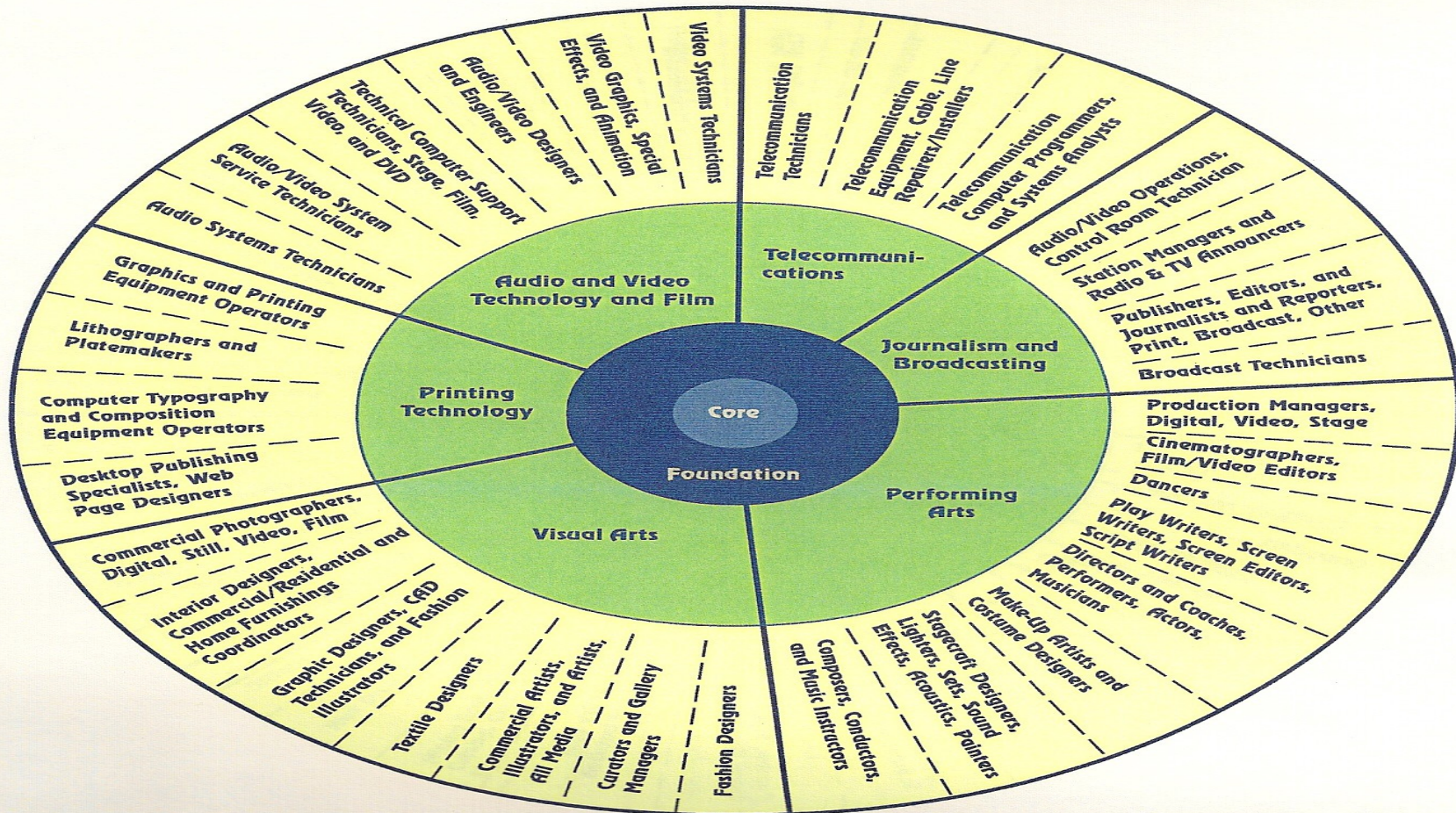
Explanation of the Primary Elements of the Career Clusters as Interpreted by VTECS

USOE / OVAE Career Cluster Title



Arts, Audio/Video Technology and Communications

Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.



Other Important Influences and Movements

- 22 National Technical Skill Standards Project
- National Skill Standards Board
- National School to Work Legislation
- Five Linkages Projects
- Emergence of the 16 Department of Education Clusters
- Department of Labor Emphasis on Economic Clusters

The 16 Career Clusters



Career Clusters' *Definition as per the Current Initiative*

Career Clusters represent a grouping of occupations and/or industries that share a common set of knowledge and skills that cut across the cluster.

Career Clusters: *Framework*

■ Cluster Level

- ◆ Represents the academic, technical and employability knowledge and skills that all students should achieve regardless of the pathway within the cluster.

■ Pathway Level

- ◆ Represents the academic, technical and employability knowledge and skill, necessary to pursue a full range of career opportunities within a pathway - ranging from entry level to management to include technical and professional career specialties.

■ Career Specialties

- ◆ Represents the full range of career opportunities within each pathway.



Preparing individuals for employment in career pathways that relate to families and human needs.

Sample Career Specialties / Occupations	<ul style="list-style-type: none"> • Directors, Childcare Facilities • Assistant Directors, Childcare Facilities • Elementary School Counselors • Preschool Teachers • Educators for Parents • Nannies • Teachers' Assistants • Childcare Assistants/Workers 	<ul style="list-style-type: none"> • Clinical and Counseling Psychologists • Industrial-Organizational Psychologists • Sociologists • School Counselors/Psychologists • Substance Abuse and Behavioral Disorder Counselors • Mental Health Counselors • Vocational Rehabilitation Counselors • Career Counselors • Employment Counselors • Residential Advisors • Marriage, Child and Family Counselors 	<ul style="list-style-type: none"> • Community Service Directors • Adult Day Care Coordinators • Coordinators of Volunteers • Licensed Professional Counselors • Religious Leaders • Directors, Religious Activities/Education Programs • Human Services Workers • Social Services Workers • Vocational Rehabilitation Counselors • Employment Counselors • Career Counselors • Vocational Rehabilitation Service Workers • Leisure Activities Coordinators • Dieticians • Geriatric Service Workers • Adult Day Care Workers • Residential Advisors • Emergency and Relief Workers • Community Food Service Workers • Community Housing Service Workers • Social and Human Services Assistants 	<ul style="list-style-type: none"> • Barbers • Cosmetologists, Hairdressers, & Hairstylists • Shampooers • Nail Technicians, Manicurists & Pedicurists • Skin Care Specialists/Estheticians • Electrolysis Technicians • Electrologists • Funeral Directors/Morticians • Embalmers • Funeral Attendants • Personal and Home Care Aides • Companions • Spa Attendants • Personal Trainers • Massage Therapists 	<ul style="list-style-type: none"> • Consumer Credit Counselors • Consumer Affairs Officers • Consumer Advocates • Certified Financial Planners • Insurance Representatives • Bankers • Real Estate Services Representatives • Financial Advisors • Investment Brokers • Employee Benefits Representatives • Hospital Patient Accounts Representatives • Customer Service Representatives • Consumer Research Department Representatives • Consumer Goods or Services Retailing Representatives • Market Researchers • Account Executives • Sales Consultants • Event Specialists • Inside Sales Representatives • Field Merchandising Representatives • Buyers • Small Business Owners
Pathways	Early Childhood Development & Services	Counseling & Mental Health Services	Family & Community Services	Personal Care Services	Consumer Services
Cluster K&S	<p>Cluster Knowledge and Skills</p> <p>♦ Academic Foundations ♦ Communications ♦ Problem Solving and Critical Thinking ♦ Information Technology Applications ♦ Systems</p> <p>♦ Safety, Health and Environmental ♦ Leadership and Teamwork ♦ Ethics and Legal Responsibilities</p> <p>♦ Employability and Career Development ♦ Technical Skills</p>				



Format: Knowledge and Skills Structure Components

■ Structure

◆ Cluster/Pathway Topics

◆ K&S Statements

• Performance Elements

– Measurement Criteria

COMPARISON OF THE U. S. DEPARTMENT OF EDUCATION'S SIXTEEN CAREER CLUSTERS TO THE NATIONAL SKILL STANDARDS BROAD FIFTEEN INDUSTRY CLUSTERS

ED/OVAE'S SIXTEEN CAREER CLUSTERS	NSSB FIFTEEN INDUSTRY CLUSTERS
▪Agriculture, Food and Natural Resources	▪Agriculture, Forestry and Fishing ▪Mining
▪Architecture and Construction	▪Construction
▪Arts, Audio-Video Technology & Communications ▪Information Technology	▪Telecommunications, Computers, Arts, Entertainment and Information Technology
▪Business, Management and Administration	▪Business and Administrative Services
▪Education and Training	▪Education and Training
▪Marketing, Sales and Service	▪Retail Trade, Wholesale Trade, Real Estate and Personal Services
▪Finance	▪Finance and Insurance
▪Hospitality and Tourism	▪Restaurants, Lodging, Hospitality and Tourism, and Amusement and Recreation
▪Health Science ▪Human Services	▪Health and Human Services
▪Law, Public Safety and Security ▪Government and Public Administration	▪Public Administration, Legal and Protective Services
	▪Utilities and Environmental and Waste Management
▪Manufacturing	▪Manufacturing, Installation and Repair
▪Science, Technology, Engineering and Mathematics	▪Scientific and Technical Services
▪Transportation, Distribution & Logistics	▪Transportation



**An education-
and
career-planning
guide
for
South Carolina
Students**

Majors Clustered Under Business, Management, and Administration

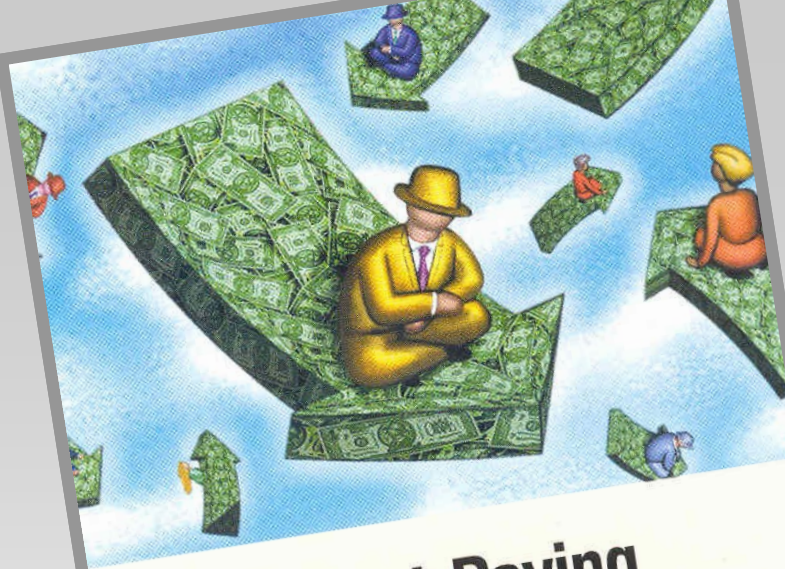




10 Fastest-Growing BMA Professions

Occupation	Job Growth
1. Technical Writer	30.43%
2. Stockbroker	19.86%
3. Cashier	19.60%
4. Receptionist and Information Clerk	18.97%
5. Court Reporter	18.51%
6. Loan Clerk and Credit Authorizer	18.38%
7. Collection Worker	17.95%
8. Counter and Rental Clerk	17.44%
9. Market Research Analyst	16.28%
10. Human Resources Specialist/Manager	13.97%

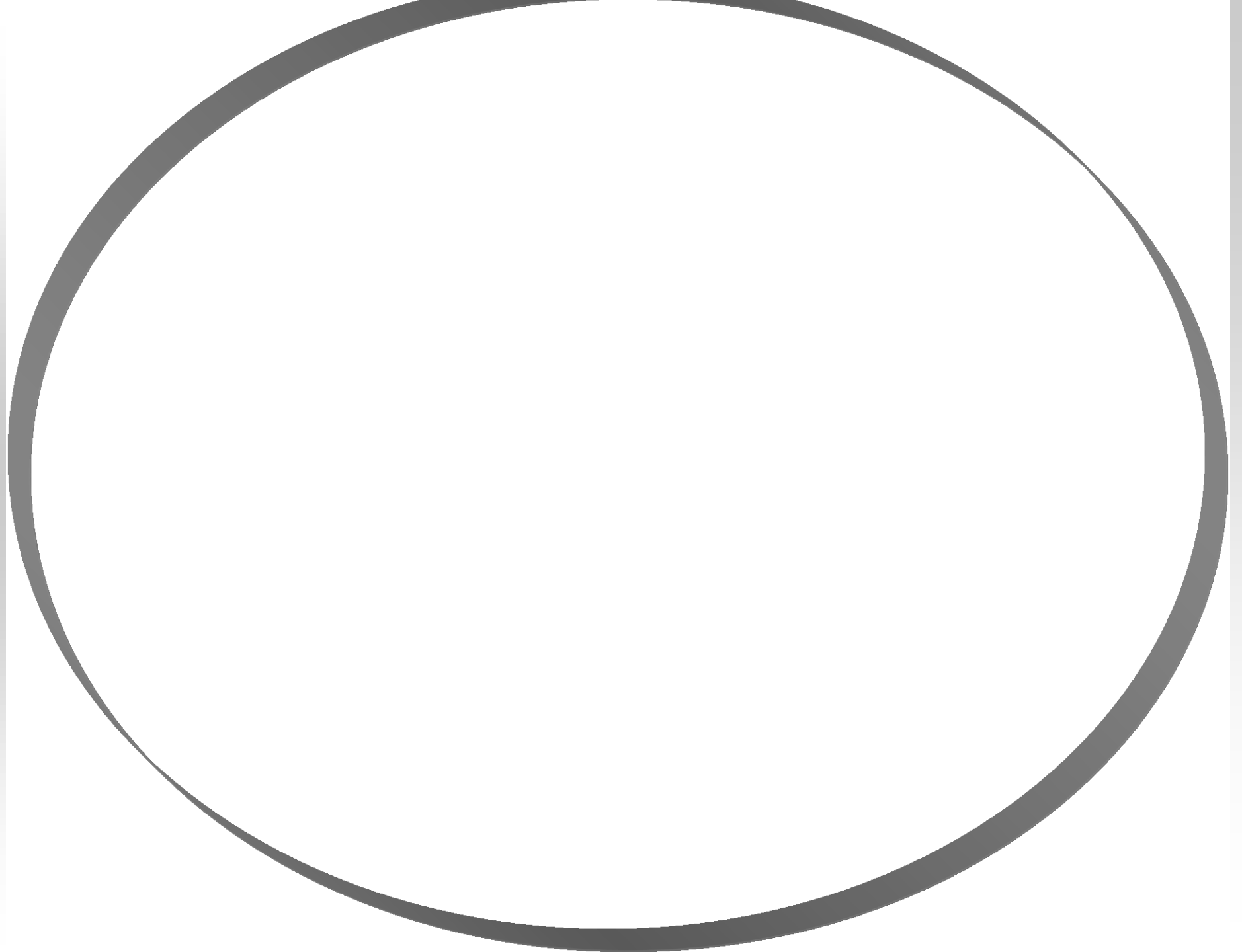
Based on expected growth in percentage of jobs available between 2001 and 2008 in South Carolina. Source: SCOIS



10 Highest-Paying BMA Professions

Occupation	Salary in SC
1. General Manager and Top Executive	\$70,985
2. Actuary	\$60,090
3. City Manager	\$55,937
4. Public Administrator	\$55,937
5. Credit Manager	\$55,720
6. Financial Manager	\$55,720
7. Market Research Analyst	\$54,000
8. Stockbroker	\$50,860
9. Management Analyst Consultant	\$49,070
10. Budget Analyst	\$49,050

Based on median salary in South Carolina. Source: SCOIS



Career Major Map: Management

Employees working in the Management field focus on preparation and execution of business activities; supervision of other employees; maintenance of facilities, equipment, and supplies; organization of operations and production; use of marketing functions to ensure success; performance of financial functions; communication with customers, clients, and others; performance of administrative functions; and use of professional services.

Sample High School Schedule

9th Grade	10th Grade	11th Grade	12th Grade
Math for Tech 1 or Algebra	Math for Tech 2 or Algebra 2	Math for Tech 3 or Geometry or Algebra 2	Math for Tech 4 or Algebra 2 or Pre-calculus
Physical Sciences ¹	Biology 1 or Applied Biology	Science Course	Elective in Science Recommended
English 1	English 2	English 3 or Communications for the Workplace 3	English 4 or Communications for the Workplace 4
Global Studies (World History or World Geography)	US History and Constitution	Economics/American Government	Elective in Social Studies Recommended
Computer Science Unit	Major Elective	Entrepreneurship	Accounting 1
Physical Education or Junior ROTC	Elective (Foreign Language Recommended)	Elective (Second Year of Foreign Language Recommended)	Major Elective (Dual Credit Where Applicable ²)
Recommended Electives			
Business and Personal Finance, Business Computer Mathematics, Business Law, E-Commerce, International Business and Marketing, Marketing, Marketing Management 1, Virtual Enterprise 1			

Out-of-Class Learning

Work-Based Learning Opportunities	Extracurricular Activities
<ul style="list-style-type: none"> • Job Shadowing • Internship • Co-op Education • Part-time Employment 	<ul style="list-style-type: none"> • Future Business Leaders of America (FBLA) • DECA • Junior Achievement

After-High-School Options

Two-Year/ Associate's Degree	Four-Year/ Bachelor's Degree	Graduate Degree	Certification	Other
Example: <ul style="list-style-type: none"> • Business Administration 	Examples: <ul style="list-style-type: none"> • Accounting • Finance • Management 	Example: <ul style="list-style-type: none"> • M.B.A. (Master of Business Administration) 	Examples: <ul style="list-style-type: none"> • Not Applicable 	<ul style="list-style-type: none"> • Employment • Military Service

Possible Occupations

- Chief Executive Officer
- Controller
- Credit Manager
- Entrepreneur
- Facilities Manager Assistant
- Financial Analyst
- First Line Supervisor
- General Manager
- Government Manager
- Hospital Manager
- Human Resources Manager
- Management Trainee
- Manufacturing Manager
- Meeting and Convention Planner
- Public Relations Manager
- Risk Manager
- Senior Manager

¹Becomes a state requirement during the 2005–06 school year. ² Some colleges award credit for certain courses.

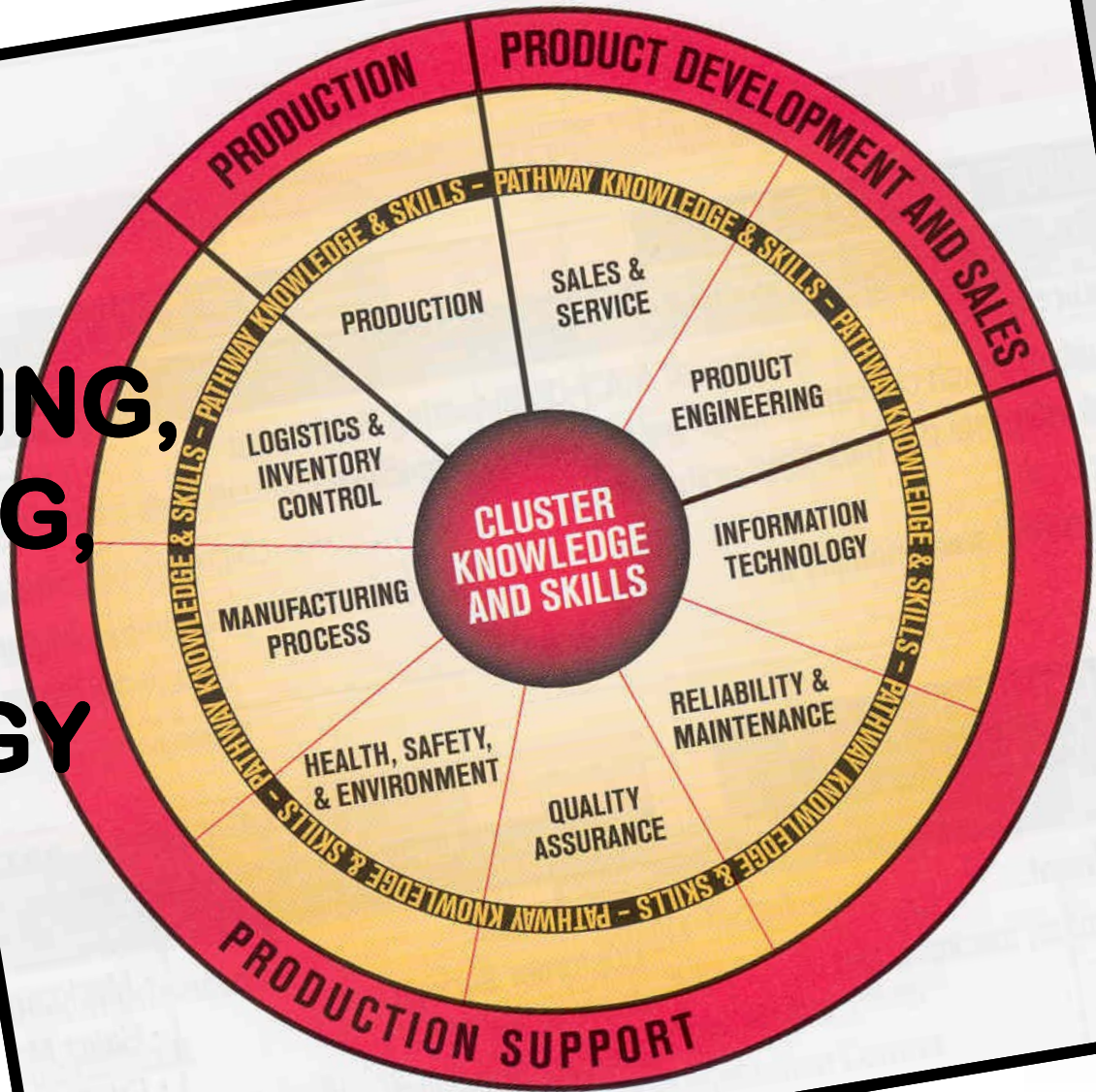
MARYLAND CAREER CLUSTERS

**Restructuring Learning for Student Achievement
In a Technologically Advanced, Global Society**

**CAREER CLUSTERS ARE
ORGANIZED AROUND
10 BROAD CAREER
AREAS THAT REFLECT
MARYLAND'S KEY
ECONOMIC SECTORS.**

1. Arts, Media, and Communication
2. Business Management and Finance
3. Consumer Services, Hospitality, and Tourism
4. Construction and Development
5. Environmental, Agricultural, and Natural Resources Systems
6. Health and Biosciences
7. Human Resource Services
8. Information Technology
9. Manufacturing, Engineering, and Technology
10. Transportation Technologies

MANUFACTURING, ENGINEERING, AND TECHNOLOGY



Career Cluster 9 MANUFACTURING, ENGINEERING, AND TECHNOLOGY

CORE AREA 1: PRODUCTION

PATHWAY: PRODUCTION

Producing products and continuously improving
production processes to meet customer and business

SAMPLE CAREER OPTIONS

REQUIRES LESS THAN FOUR-YEAR COLLEGE DEGREE

- Manufacturing Technician
- Production Assembler
- CAD/CAM Technician
- Production Supervisor
- Production Team Leader

REQUIRES FOUR-YEAR COLLEGE DEGREE

- Manufacturing Engineer
- Product Engineer
- Controls Engineer
- Systems Engineer
- Project Manager
- Program Manager

Marketing, selling, customer service, and
customer relationship management.

- Identify and analyze customer value, markets, and products.
- Identify potential customers.
- Establish and maintain relationships with potential and existing customers.
- Promote and sell products and services to customers.
- Provide customer service, including providing product information, taking and processing customer orders, answering questions, resolving problems, and providing technical support in the use and disposal of products.

- Representative
- Contract Specialist
- Sales Coordinator