

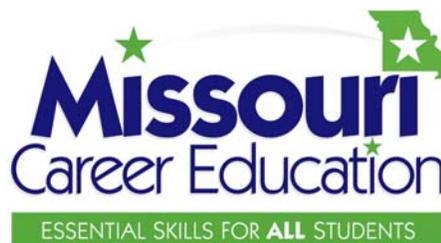
STATEWIDE VALIDATION

of
National Career Cluster Knowledge and Skills Statements
with
Suggestions to Better Prepare the Workforce of Tomorrow

*Responses Received from Online Survey of Missouri Business and Industry
Conducted November 20, 2006 through January 8, 2007*

16 Career Clusters

- *Agriculture, Food and Natural Resources*
- *Architecture and Construction*
- *Arts, Audio-Visual Technology, and Communication*
- *Business, Management and Administration*
- *Education and Training*
- *Finance*
- *Government and Public Administration*
- *Health*
- *Hospitality and Tourism*
- *Human Services*
- ***Information Technology***
- *Law, Public Safety, Corrections and Security*
- *Manufacturing*
- *Marketing, Sales and Service*
- *Science, Technology, Engineering and Mathematics*
- *Transportation, Distribution and Logistics*



Department of Elementary and Secondary Education
Division of Career Education
Nancy J. Headrick, Assistant Commissioner
P.O. Box 480
Jefferson City, MO 65102-0480
(573) 751-3500

How essential are the following cluster FOUNDATION knowledge and skills to a career in Information Technology? (Section 1 of 8) ACADEMIC:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Demonstrate Language Arts knowledge and skills required to pursue the full-range of career and post-secondary education opportunities within the IT career cluster.	29% (9)	61% (19)	6% (2)	3% (1)	0% (0)	1.84
Demonstrate Mathematics knowledge and skills required to pursue the full-range of career and post-secondary education opportunities within the IT career cluster.	52% (16)	39% (12)	6% (2)	3% (1)	0% (0)	1.61
Demonstrate Science knowledge and skills required to pursue the full-range of career and post-secondary education opportunities within the IT career cluster.	26% (8)	16% (5)	42% (13)	16% (5)	0% (0)	2.48
Total Respondents						31

How essential are the following cluster foundation knowledge and skills to a career in Information Technology? (Section 2 of 8) COMMUNICATIONS:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Comprehend and use reading strategies to learn meaning, technical concepts, vocabulary, and follow instructions.	80% (24)	20% (6)	0% (0)	0% (0)	0% (0)	1.20
Locate, organize and reference written information from various sources to communicate with co-workers and clients/participants.	57% (17)	43% (13)	0% (0)	0% (0)	0% (0)	1.43
Use correct grammar, punctuation and terminology to write and edit documents.	40% (12)	50% (15)	10% (3)	0% (0)	0% (0)	1.70

Develop and deliver formal and informal presentations using appropriate media to engage and inform audiences.	37% (11)	37% (11)	23% (7)	3% (1)	0% (0)	1.93
Interpret verbal and nonverbal behaviors to enhance communication with co-workers and clients/participants.	20% (6)	77% (23)	3% (1)	0% (0)	0% (0)	1.83
Apply active listening skills to obtain and clarify information.	70% (21)	23% (7)	7% (2)	0% (0)	0% (0)	1.37
Interpret and use tables, charts, and figures to support written and oral communications.	37% (11)	43% (13)	17% (5)	3% (1)	0% (0)	1.87
Demonstrate sensitivity in communicating with a diverse workforce.	33% (10)	37% (11)	27% (8)	3% (1)	0% (0)	2.00
Conduct meetings.	20% (6)	40% (12)	37% (11)	3% (1)	0% (0)	2.23
Build customer relations.	21% (6)	62% (18)	14% (4)	3% (1)	0% (0)	2.00
Perform scheduling functions to meet customer needs.	23% (7)	43% (13)	27% (8)	3% (1)	3% (1)	2.10
Total Respondents						30

How essential are the following foundation cluster knowledge and skills to a career in Information Technology? (Section 3 of 8) INFORMATION TECHNOLOGY APPLICATIONS:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Use Personal Information Management (PIM)/Productivity Applications.	17% (5)	48% (14)	28% (8)	0% (0)	7% (2)	2.11
Use electronic mail applications.	43% (13)	43% (13)	13% (4)	0% (0)	0% (0)	1.70
Use Internet applications.	41% (12)	41% (12)	17% (5)	0% (0)	0% (0)	1.76
Use writing/publishing applications.	7% (2)	62% (18)	31% (9)	0% (0)	0% (0)	2.24
Use presentation applications.	17% (5)	41% (12)	38% (11)	3% (1)	0% (0)	2.28
Use spreadsheet applications.	21% (6)	48% (14)	31% (9)	0% (0)	0% (0)	2.10
Use database applications.	41% (12)	41% (12)	17% (5)	0% (0)	0% (0)	1.76

Use collaborative/groupware applications.	18% (5)	64% (18)	18% (5)	0% (0)	0% (0)	2.00
Use computer operations applications.	21% (6)	62% (18)	14% (4)	3% (1)	0% (0)	2.00
Use computer-based equipment (containing embedded computers (or processors) used to control electromechanical devices).	17% (5)	52% (15)	31% (9)	0% (0)	0% (0)	2.14
Total Respondents						30

How essential are the following foundation cluster knowledge and skills to a career in Information Technology? (Section 4 of 8) TECHNICAL SKILLS:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Demonstrate knowledge of the hardware components associated with information systems.	29% (8)	50% (14)	14% (4)	4% (1)	4% (1)	1.93
Demonstrate knowledge of the classes of software associated with information systems.	39% (11)	36% (10)	21% (6)	4% (1)	0% (0)	1.89
Explore the future of information technologies.	36% (10)	39% (11)	18% (5)	4% (1)	4% (1)	1.89
Demonstrate knowledge of basic data communications components and trends.	7% (2)	78% (21)	11% (3)	0% (0)	4% (1)	2.04
Demonstrate technical knowledge of the Internet.	22% (6)	56% (15)	22% (6)	0% (0)	0% (0)	2.00
Access the Internet.	52% (14)	37% (10)	7% (2)	4% (1)	0% (0)	1.63
Utilize Internet services.	43% (12)	39% (11)	18% (5)	0% (0)	0% (0)	1.75
Install and configure software programs.	46% (13)	43% (12)	11% (3)	0% (0)	0% (0)	1.64
Demonstrate knowledge of web page basics.	33% (9)	44% (12)	19% (5)	4% (1)	0% (0)	1.93
Operate system.	44% (12)	37% (10)	15% (4)	4% (1)	0% (0)	1.78
Perform standard computer backup procedures.	37% (10)	41% (11)	22% (6)	0% (0)	0% (0)	1.85

Describe system components.	19% (5)	67% (18)	7% (2)	4% (1)	4% (1)	1.96
Maintain security requirements.	46% (13)	46% (13)	7% (2)	0% (0)	0% (0)	1.61
Employ computer system interfaces.	41% (11)	41% (11)	15% (4)	0% (0)	4% (1)	1.73
Maintain system.	33% (9)	41% (11)	26% (7)	0% (0)	0% (0)	1.93
Provide support and training.	29% (8)	50% (14)	21% (6)	0% (0)	0% (0)	1.93
Demonstrate a basic knowledge of quality assurance concepts.	25% (7)	50% (14)	21% (6)	4% (1)	0% (0)	2.04
Total Respondents						28

How essential is the following cluster FOUNDATION knowledge and skill to a career in Information Technology? (Section 5 of 8) SYSTEMS:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Characterize the nature of business.	30% (8)	56% (15)	11% (3)	0% (0)	4% (1)	1.81
Demonstrate knowledge of the nature of IT in business.	58% (15)	38% (10)	4% (1)	0% (0)	0% (0)	1.46
Demonstrate knowledge of the operation of cross-functional teams in achieving project goals.	22% (6)	63% (17)	15% (4)	0% (0)	0% (0)	1.93
Explain/discuss general strategies for maximizing organizational learning and productivity in a high tech environment.	11% (3)	70% (19)	19% (5)	0% (0)	0% (0)	2.07
Total Respondents						27

SAFETY, HEALTH AND ENVIRONMENTAL:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Maintain a safe working environment.	56% (15)	26% (7)	15% (4)	0% (0)	4% (1)	1.58
Total Respondents						27

How essential are the following cluster FOUNDATION knowledge and skills to a career in Information Technology? (Section 6 of 8) LEADERSHIP AND TEAMWORK:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Demonstrate knowledge of the skills needed for leadership in the IT environment.	37% (10)	44% (12)	15% (4)	4% (1)	0% (0)	1.85
Build interpersonal skills with individuals and other team members.	52% (14)	44% (12)	4% (1)	0% (0)	0% (0)	1.52
Total Respondents						27

ETHICAL AND LEGAL RESPONSIBILITIES:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Demonstrate appropriate knowledge and behaviors of legal responsibilities and of positive cyber-citizenry.	52% (14)	33% (9)	11% (3)	4% (1)	0% (0)	1.67
Demonstrate knowledge of the rights and responsibilities of IT workers.	37% (10)	41% (11)	15% (4)	7% (2)	0% (0)	1.93
Demonstrate knowledge of social, ethical, and legal issues in the information technology field.	44% (12)	41% (11)	7% (2)	7% (2)	0% (0)	1.78
Total Respondents						27

How essential are the following cluster FOUNDATION knowledge and skills to a career in Information Technology? (Section 7 of 8) EMPLOYABILITY AND CAREER DEVELOPMENT:

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Explain written organizational policies, rules and procedures to help employees perform their jobs.	16% (4)	56% (14)	28% (7)	0% (0)	0% (0)	2.12
Identify and demonstrate positive work behaviors and personal qualities.	50% (13)	38% (10)	12% (3)	0% (0)	0% (0)	1.62
Identify and explore career opportunities in one or more career pathways.	23% (6)	50% (13)	19% (5)	4% (1)	4% (1)	2.04
Develop a personal career plan to meet career goals and objectives.	27% (7)	58% (15)	15% (4)	0% (0)	0% (0)	1.88
Demonstrate ability to seek and apply for employment.	42% (11)	58% (15)	0% (0)	0% (0)	0% (0)	1.58
Demonstrate ability to evaluate and compare employment opportunities and accept employment.	31% (8)	65% (17)	4% (1)	0% (0)	0% (0)	1.73
Provide examples of how IT is transforming business in various industries.	24% (6)	40% (10)	36% (9)	0% (0)	0% (0)	2.12
Demonstrate knowledge of the relationship between lifelong learning and IT career development.	27% (7)	62% (16)	12% (3)	0% (0)	0% (0)	1.85
Demonstrate knowledge of career development/progression patterns in the IT industry.	8% (2)	65% (17)	19% (5)	8% (2)	0% (0)	2.27
Total Respondents						26

How essential is the following cluster FOUNDATION knowledge and skill to a career in Information Technology? (Section 8 of 8) **PROBLEM SOLVING AND CRITICAL THINKING:**

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Guide progress in assigned areas of responsibility/accountability.	26% (7)	70% (19)	4% (1)	0% (0)	0% (0)	1.78
Demonstrate knowledge of the process required to evaluate and verify the nature of a problem.	59% (16)	41% (11)	0% (0)	0% (0)	0% (0)	1.41
Demonstrate knowledge of the process required to solve a problem.	59% (16)	41% (11)	0% (0)	0% (0)	0% (0)	1.41
Demonstrate an ability to evaluate and verify the appropriateness of a solution to a problem.	62% (16)	38% (10)	0% (0)	0% (0)	0% (0)	1.38
Demonstrate knowledge of information organization principles.	33% (9)	56% (15)	11% (3)	0% (0)	0% (0)	1.78
Demonstrate knowledge of design principles.	15% (4)	70% (19)	11% (3)	4% (1)	0% (0)	2.04
Total Respondents						27

Please comment on other skills and knowledge that are essential as a foundation for success in an array of careers and educational pursuits in the Information Technology career cluster.

Total Respondents	5
(See Comments sheet)	

Please select a career pathway:

		Response Percent	Response Total
Network Systems		25%	7
Information Support and Services		46.4%	13
Programming and Software Development		21.4%	6
Interactive media		7.1%	2
Total Respondents			28

How essential are the following skills for the "Network Systems" career pathway?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Identify and analyze customer/organizational network system needs and requirements.	62% (5)	38% (3)	0% (0)	0% (0)	0% (0)	1.38
Perform project management.	38% (3)	50% (4)	12% (1)	0% (0)	0% (0)	1.75
Analyze network system interdependencies and constraints.	62% (5)	38% (3)	0% (0)	0% (0)	0% (0)	1.38
Demonstrate knowledge of designing a network system.	38% (3)	50% (4)	12% (1)	0% (0)	0% (0)	1.75
Perform network system installation and configuration.	62% (5)	38% (3)	0% (0)	0% (0)	0% (0)	1.38
Perform network administration and monitoring.	62% (5)	38% (3)	0% (0)	0% (0)	0% (0)	1.38
Perform network maintenance and user support services.	50% (4)	50% (4)	0% (0)	0% (0)	0% (0)	1.50
Total Respondents						8

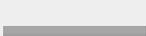
What other skills and knowledge are essential for this career pathway?

Total Respondents	1

How would you characterize your relationship to the workforce in the career pathway of Network Systems? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		55.6%	5
I supervise people who are in this career field		44.4%	4
I work in this career field		33.3%	3
I have a friend or relative who works in this career field		44.4%	4
I have an interest in improving the quality of the workforce in this area		44.4%	4
I have an interest in attracting more people to this career field		44.4%	4
I have no professional connection with this career field		0%	0
Other (please specify)		0%	0
Total Respondents			9

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey.		77.8%	7
Return to the IT career cluster list to select another pathway.		22.2%	2
Total Respondents			9

How essential are the following skills for the "Information Support and Services" career pathway?

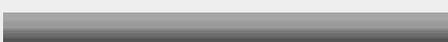
	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Perform computer user support.	69% (9)	23% (3)	8% (1)	0% (0)	0% (0)	1.38
Manage software systems.	33% (4)	67% (8)	0% (0)	0% (0)	0% (0)	1.67
Demonstrate and apply knowledge of web programming and hosting.	8% (1)	69% (9)	15% (2)	8% (1)	0% (0)	2.23
Demonstrate and apply knowledge of hardware design, operation and maintenance.	46% (6)	38% (5)	15% (2)	0% (0)	0% (0)	1.69
Demonstrate knowledge of programming theory.	15% (2)	54% (7)	23% (3)	8% (1)	0% (0)	2.23
Demonstrate knowledge of networking concepts.	23% (3)	62% (8)	15% (2)	0% (0)	0% (0)	1.92
Demonstrate knowledge of application development lifecycle.	23% (3)	54% (7)	8% (1)	15% (2)	0% (0)	2.15
Demonstrate and apply knowledge of Information System Analysis and Design	31% (4)	54% (7)	8% (1)	8% (1)	0% (0)	1.92
Demonstrate and apply knowledge of System Installation and Maintenance.	38% (5)	54% (7)	8% (1)	0% (0)	0% (0)	1.69
Demonstrate knowledge of System Administration and Control.	54% (7)	46% (6)	0% (0)	0% (0)	0% (0)	1.46
Demonstrate and apply knowledge of Project Management.	31% (4)	46% (6)	23% (3)	0% (0)	0% (0)	1.92
Demonstrate and apply knowledge of Technical Writing and Documentation.	31% (4)	46% (6)	23% (3)	0% (0)	0% (0)	1.92
Understand and implement Quality Assurance processes.	31% (4)	31% (4)	31% (4)	8% (1)	0% (0)	2.15
Total Respondents						13

What other skills and knowledge are essential for this career pathway?

Total Respondents

0

How would you characterize your relationship to the workforce in the "Information Support and Services" career pathway? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		30.8%	4
I supervise people who are in this career field		46.2%	6
I work in this career field		61.5%	8
I have a friend or relative who works in this career field		69.2%	9
I have an interest in improving the quality of the workforce in this area		69.2%	9
I have an interest in attracting more people to this career field		76.9%	10
I have no professional connection with this career field		7.7%	1
Other (please specify)		0%	0
Total Respondents			13

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey.		91.7%	11
Return to the IT career cluster list to select another pathway.		8.3%	1
Total Respondents			12

How essential are the following skills for the "Interactive Media" career pathway?

	Very important	Important	Slightly Important	Not Important	No opinion	Response Average
Gather and analyze interactive media customer requirements.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Define scope of interactive media work in written form.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Create interactive media product specifications.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Demonstrate and apply knowledge of Project Management.	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	3.00
Demonstrate the effective use of tools for interactive media production, development and project management.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Demonstrate and apply knowledge of web programming and hosting.	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	3.00
Create/implement interactive media product.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Test interactive media product.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Deliver a quality interactive media product.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Perform maintenance and customer support functions for interactive media products.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Total Respondents						1

What other skills and knowledge are essential for this career pathway?

Total Respondents						0
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How would you characterize your relationship to the workforce in the career pathway of Interactive media? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		50%	1
I work in this career field		0%	0
I supervise people who are in this career field		50%	1
I have an interest in improving the quality of the workforce in this area		50%	1
I have an interest in attracting more people to this career field		50%	1
I have no professional connection with this career field		0%	0
I have a friend or relative who works in this career field		50%	1
No response		0%	0
Total Respondents			2

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey.		100%	2
Return to the IT career cluster list to select another pathway.		0%	0
Total Respondents			2

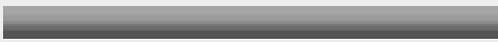
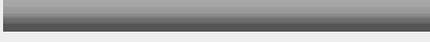
How essential are the following skills for the "Programming and Software Development" career pathway?

	Very important	Important	Slightly Important	Not Important	No opinion	Response Average
Identify and analyze customer software needs and requirements.	67% (6)	33% (3)	0% (0)	0% (0)	0% (0)	1.33
Produce IT-based strategies and project plan to solve the specific problem.	56% (5)	44% (4)	0% (0)	0% (0)	0% (0)	1.44
Define and analyze system and software requirements.	78% (7)	22% (2)	0% (0)	0% (0)	0% (0)	1.22
Demonstrate the effective use of tools for software development.	56% (5)	44% (4)	0% (0)	0% (0)	0% (0)	1.44
Demonstrate knowledge of the software development process.	78% (7)	22% (2)	0% (0)	0% (0)	0% (0)	1.22
Design a software application.	56% (5)	33% (3)	11% (1)	0% (0)	0% (0)	1.56
Produce (code) a computer application.	56% (5)	44% (4)	0% (0)	0% (0)	0% (0)	1.44
Demonstrate knowledge of software testing.	56% (5)	44% (4)	0% (0)	0% (0)	0% (0)	1.44
Perform quality assurance tasks to produce quality products.	67% (6)	33% (3)	0% (0)	0% (0)	0% (0)	1.33
Perform maintenance and customer support functions.	56% (5)	44% (4)	0% (0)	0% (0)	0% (0)	1.44
Total Respondents						9

What other skills and knowledge are essential for this career pathway in Missouri?

Total Respondents	4
(See Comments page)	

How would you characterize your relationship to the workforce in the career pathway of Programming and Software Development? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		66.7%	6
I work in this career field		77.8%	7
I supervise people who are in this career field		55.6%	5
I have an interest in improving the quality of the workforce in this area		66.7%	6
I have an interest in attracting more people to this career field		66.7%	6
I have no professional connection with this career field		11.1%	1
I have a friend or relative who works in this career field		55.6%	5
No response		0%	0
Total Respondents			9

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey.		66.7%	6
Return to the IT career cluster list to select another pathway.		33.3%	3
Total Respondents			9

In which state do you live?

		Response Percent	Response Total
Missouri		96.2%	25
Other (please specify)		3.8%	1
Total Respondents			26

Please indicate the professional area in which you work:

		Response Percent	Response Total
Business/Industry		80.8%	21
State Agency		11.5%	3
Federal Agency		3.8%	1
Association/Chamber		0%	0
Secondary Education		0%	0
Postsecondary Education		3.8%	1
Other (please specify)		0%	0
Total Respondents			26

Years of work experience:

		Response Percent	Response Total
Student		0%	0
0-1		0%	0
2-5		0%	0
6-10		7.7%	2
11-20		30.8%	8
21-30		34.6%	9
31+		26.9%	7

Total Respondents	26

What other comments would you like to add related to career education in Missouri?

Total Respondents	2
(See Comments page)	

Would you be willing to participate in future surveys like this related to Missouri Career Education and workforce development?

		Response Percent	Response Total
Yes		45.8%	11
Maybe		37.5%	9
No		16.7%	4
Total Respondents			24

Would you be willing to serve on a local or state advisory council for the betterment of career education and workforce preparation in Missouri?

		Response Percent	Response Total
Yes		45.8%	11
Maybe		12.5%	3
No		41.7%	10
Total Respondents			24

If you indicated "yes" or "maybe" to either of the two questions above, please provide DESE your contact information (include name, company, address, telephone number, and e-mail address). This information will be used solely for the purposes described.

Total Respondents	14

Through which channel did you receive this survey?

		Response Percent	Response Total
Trade association or professional society		23.1%	6
Chamber of Commerce or industry group		0%	0
Business colleague		3.8%	1
e-mail from Department of Elementary and Secondary Education		69.2%	18
Educator		3.8%	1
Website link		0%	0
Word-of-mouth		0%	0
Other (please specify)		0%	0
Total Respondents			26

Was this survey easy to use?

		Response Percent	Response Total
Yes		80.8%	21
No		0%	0
Somewhat		3.8%	1
Comments		15.4%	4
Total Respondents			26

COMMENTS FOR INFORMATION TECHNOLOGY:**FOUNDATION Knowledge and Skills:**

Please comment on other skills and knowledge that are essential as a foundation for success in an array of careers and educational pursuits in the Information Technology career cluster.	
1.	Ability to prioritize competing work tasks, and ability to multi-task between competing work tasks.
2.	The ability to demonstrate problem solving skills is critical.
3.	Value stream mapping of a process
4.	Service Mgmt. skills are needed to manage Time, Financials, Project, Career, & Business Re-engineering to meet customer's evolving requirements. Employees will need a Financial/Accounting education/business projects to coincide with their technical skills. Technology & cheaper outsourcing will replace the current expensive employee resource. Careers such as Travel agent, HR, junior accountants, secretaries, white-collar managers, computer operators, programmers, System administrators, etc.. are being replaced by CRM tools, COTS products, and sophisticated monitoring tools. Business needs are for Financial Project Mgrs., CRM - SAP, PeopleSoft, C#, - WEB apps. Employees will need to have a bachelor's degree in a specialized need with a minor in a business/technical advanced classes w/ internship to prove they can be hired and improve the department's metrics within that fiscal qtr./year. Master's degree, MBA, CPA, IT certifications, and/or experience in ITIL & Proj. Mgmt. are in demand. Missouri needs to link with international, nationwide, & local businesses because the state is losing jobs due to outsourcing from current companies. Unless the Missouri can prove due to metrics that they can provide the skills needed for the next decade you'll keep losing jobs to your competitors. Your major universities are not recognized by Big business and the state is not competitive in IT. The entire state has to be re-engineered, realigned, & create a roadmap as a partner with the international companies to compete. St. Louis companies are currently looking for business analysts to outsource projects or the entire IT budget overseas. You can't solely rely on bio-medical and bio-engineering to provide IT jobs of the future. Missouri should be able to compete nationally based on affordable housing, better lifestyle, and private education. Drawbacks are lack of flexibility, poor public schools, and lack of leadership for forward 21st century vision.
5.	Must be a self-motivated individual who doesn't require spoon feeding.

PATHWAY Knowledge and Skills:**PATHWAY – NETWORK SYSTEMS**

What other skills and knowledge are essential for this career pathway?	
1.	Understanding of how network systems interact with application software and how they are dependent on one another.

PATHWAY – INFORMATION SUPPORT AND SERVICES

No comments.

PATHWAY – INTERACTIVE MEDIA

No comments.

PATHWAY – PROGRAMMING AND SOFTWARE DEVELOPMENT

What other skills and knowledge are essential for this career pathway in Missouri?	
1.	Ability to debug a program (especially one written by someone else).
2.	Finance, higher levels of Math & Science, Accounting, & excellent oral & written communication skills. Foreign languages are a must in the 'World is Flat' competition. Honor roll & Advanced Placement classes are a necessity since your competition will not be your neighbor. Business & System analysts are a must to understand requirements, project planning, & costing. ITIL & Service mgmt. skills are needed since business process improvement initiatives are audited yearly by Upper Mgmt. Softskills are in demand such as humility, technical writing, and a track record for self-development. Certifications exhibit an employee's technical expertise compared to their peers in the field. MS Office, Web Development, Java, Perl, Application programmer/DBA inc/ data warehousing are a plus.
3.	Business Knowledge for the environment where employed.
4.	Written and verbal communication skills.

OTHER COMMENTS:

What other comments would you like to add related to career education in Missouri?	
1.	The community colleges have the best technical classes needed by employers in the workforce. Unfortunately, college classes without business professionals re-tuning or developing the syllabus & content will never provide the skills needed to overcome a lack of experience which roadblocks most new or career changers. I would like to work with the State to solicit IBM, HP, CA, MS, SAP, Oracle, etc... to establish training centers within the colleges, public/private schools and leverage a challenging curriculum from K-12 to take advantage of this new roadmap. If not, Missouri will continue losing their brightest to other states, colleges, & to low paying, less tax producing service jobs. Good Luck.....
2.	Need to have more situational experiences employing problem solving skills involving real-life companies.
3.	Missouri knows their problems but as long as you have an educational gap between private & public schools based on low expectations, home address, & lack of historical 'lessons learned' you're doomed to always be a 2nd rate state/city losing population & talent every decade.